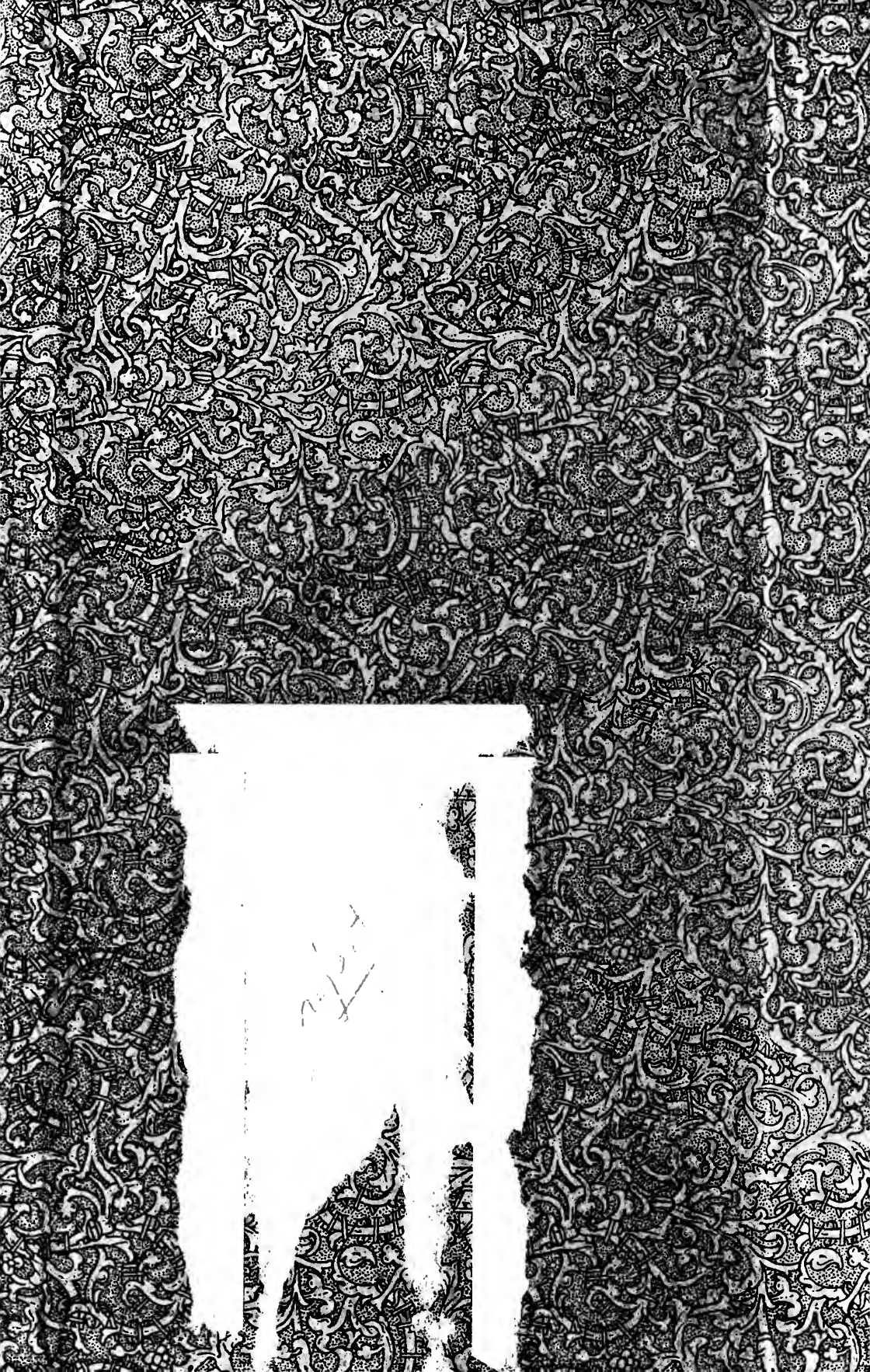


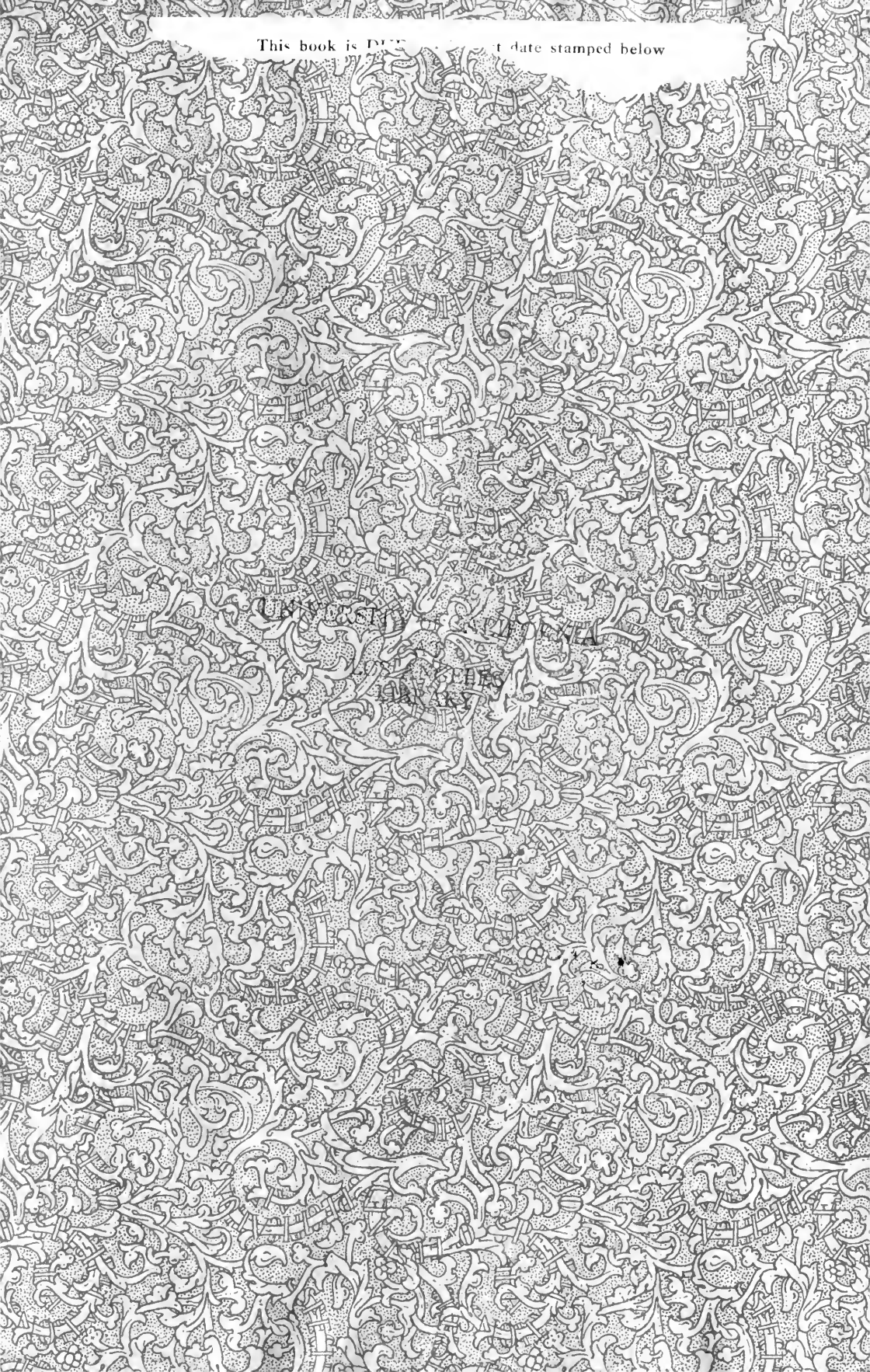
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The Art of Curative Gymnastics



VENUS DE MILO

The Art of Curative Gymnastics

BY

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20146

Illustrated

BATTLE CREEK, MICHIGAN
THE GOOD HEALTH PUBLISHING COMPANY
1910

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PREFACE

"Health is the greatest wealth."—*Emerson.*

THAT the dream of the "father of Swedish gymnastics," Pehr Henrik Ling, has come true to-day—the whole world asceking health, not by nauseating pills and powders, but natural processes of physical upbuilding—is encouragingly coincident with the forthcoming centennial celebration in 1912 of the original Royal Gymnastic Institute which he founded in Stockholm, Sweden.

Persons gifted with "sanctified common sense" increasingly recognize that there are unchanging principles of health—principles that prove themselves century after century. They rise supreme above the medical men of the extremely materialistic type on the one side, whose so-called scientific opinions are at perpetual war, and, on the other, the ethereal mind-cure folk who flop from one rosy-colored cult to another with each new "inspiration." Still, we can see the comparative value of even such extremes at the present day. But Pehr Henrik Ling emphasized the universal truth that within the body—within this "temple of the living soul"—abides a natural power, implanted by the Great Giver of Health, through the intelligent exercise whereof one may grow to physical perfection.

What is so freely furnished by this great Giver of Health by way of environment? Air—a sky full of it, so to speak; water—the earth fairly overflowing with it; sunshine—the finest electric treatment in the world. And food? Yes, natural, uncooked food such as fruits and nuts. Indeed, if a man were fortunate enough not to become overcivilized, and lived "next to nature," he might always be happy with his rightful heritage of superb strength. As it happens, however, the race has evolved away from natural pursuits; has shut itself up in ill-ventilated offices and houses—and so text-books have to be written to teach hollow-chested people how to breathe properly; how to exercise that the blood may carry its vital forces to every nook of the half-nourished body.

It is absurd, even criminal, to think that the delicate, intricate organism of the physical body can be neglected without its degenerating from abounding life into disease and disuse. Would a wide-awake manufacturer allow his steel machinery, which serves him so well financially, to become rusty? Would a sane goldsmith attempt to mend a fragile watch with a hammer? Yet the superior human being, endowed with a soul and spirit, often blindly overlooks the fine functioning of his body—and, in consequence, fails to work out his physical salvation.

That permanent cures are being wrought by rational body upbuilding every disciple of right living declares. But it requires systematic work, alike exhilarating and strength-giving, and for that reason this book, the outgrowth of years of literally "making men new," may serve as a signpost for those who seek the royal road to physical health—and happiness.

The author desires particularly to express his obligations to Dr. J. H. Kellogg and his associates at the Battle Creek Sanitarium, for the inspiration and assistance they have given him, not only in the preparation of this book, but also for the opportunity afforded him for the development of this system. He desires, also, to express his gratitude to his teachers in Stockholm, Sweden, who instilled into him that enthusiasm and earnestness so characteristic of all true disciples of the great pioneer, Pehr Henrik Ling.

GYMNASTICS AS AN ART

Beauty is the divine ideal. All schools of artists are but spelling it out, and every great artist is a flash of God on this dull world of ours.—*Lyman Abbott.*

The words of those who have given the subject of personal beauty particular study are best worth attention. In your efforts to make a lovely picture of yourself, you are allied to them as fellow-workers. If it is true that the highest thing they can do is to set before us the true image of the presence of a noble human being, you are even at an advantage. You have, instead of canvas and pigments, the real human being which you are striving to make fine.—*Francis M. Steele.*

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Introduction

THE ART OF CURATIVE GYMNASTICS

INTRODUCTION

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SIMPLE, common sense methods in the art of Manual Therapeutics and Physical Education are now coming, more and more, to the front.

The search of the enlightened physician, nowadays, is not so much for mysterious remedies to suppress symptoms of disease, as to find the different causes and their remedies.

For generations, most people have allowed their bodies to grow into abnormal shapes, in that way interfering not only with the circulation but also with all the other vital functions.

The scientific teacher of physical education will be able to accomplish far more by the simple methods set forth in this book, than one-sided specialists, who do not pay due attention to the principles here advocated.

The fundamental principles of the Swedish system have been adhered to as being the most practical and scientific system known. Its success is due to intelligent attention to the laws governing the muscles, nervous system and circulation.

The great majority of athletes, as well as people of more sedentary habits, are more or less deformed, with collapsed chests, unnaturally curved backs, etc. This is often due to one-sided work, wrong sitting habits, lack of proper exercise, irrational and excessive exercise, wrong dress, as well as wrong mental attitudes. The system of Manual Therapeutics here advocated has proven to be the quickest means of correcting this injurious condition, equalizing the circulation and relieving disease.

Physicians, as well as teachers of physical education, have not in the past given enough attention to the articulations of the spinal cord and ribs. It has been left to the Swedish specialists and the osteopaths to actually demonstrate the benefits from such a general "limbering up" of the entire organism. All genuine practitioners of the Swedish system will do this as a routine before attempting to build up any particular muscle groups. They have been doing this for nearly one hundred years, al-

though the last twenty years have seen the greatest advancement in these lines. Such do not have to resort to any kind of impostures in order to get the confidence and faith of their patients. Their absolute honesty and idealistic tendencies will have a far more beneficial influence on the mind of any cultured and intelligent patient.

The rational combination of manual therapeutics with other branches of physical education—massage, hydrotherapy, psychotherapy, dietetics, etc.—is by far the best way of getting speedy, as well as permanent results. The author has had unexcelled opportunities to prove this during his long connection with the Battle Creek Sanitarium movement and other similar undertakings.

An unprejudiced comparison between the results obtained by the specialist of manual therapeutics, who does not pay due attention to other branches of physiological remedies and those obtained when these other rational principles are taken into consideration, convinced the author, many years ago, of the great need for a broader education along these lines. He, therefore, hopes that this book will aid in filling such a need and also serve as a handy manual for the busy practitioner as well as the teacher of physical education.

The progressive methods illustrated are original to the author. The great benefits derived from this scheme of progression is remarkable; for it combines the virtues of the Swedish as well as other rational systems of manual therapeutics. The progression is made gradual, beginning with passive movements and adding active ones, both free and resistive, as the patient becomes stronger. When the larger muscle groups of the body are exercised in such a way as to allow a free expansion of the chest, the body will quickly recuperate. The exhilarating effects derived from such exercises will be far greater and more lasting than those derived from lighter and faster movements. The circulation will be freer and the strength of the system greatly increased. This

building of a greater strength and vitality is the best and quickest way of insuring health.

The lighter and faster movements are also of great value. Dumbbell and club exercises as well as other light calisthenics, games, fencing, etc., develop grace and speed. When taken alone, they will not, however, increase the strength nor influence the circulation nearly so much as the slow and more powerful movements. According to La Grange, the flow of blood to a muscle subjected to a moderately heavy strain is more voluminous and prolonged than when it is subjected to a slight strain. It is consequently also better nourished, providing it receives enough rest and relaxation between the exercises.

Relaxation is best induced by means of passive movements and other manipulations of the nature described. The mental attitude is of the greatest importance, as it is impossible to relax any muscle group without the aid of the mind. Any unnatural mental strain will tend to tense the voluntary as well as the involuntary muscles, especially if accompanied by a condition of autointoxication, that great destroyer of the happiness and joy of life.

A muscle does not need to be fatigued in order to receive the best development. In the words of George Elliot Flint: "In my belief, a large number of feeble contractions will tire a muscle completely and develop it very little; and, conversely, a few more powerful contractions will develop a muscle greatly, and fatigue it very little."

The great advantage of the Swedish system of progression advocated is in the author's opinion due to the combination of passive relaxing movements with heavier exercises. These latter are generally done comparatively slowly, either as resistive or free movements. The resistance is gradually made stronger as the patient's strength increases.

Sadler has made the interesting observation, that if resistance is offered to a contracting muscle so as to prevent its shortening, a great deal more blood will pass through it than if it is allowed to contract without an opposing force. Resistive exercises also help to train the

individual in placing his body better under the influence of his will. He gradually learns to concentrate his energy on the muscles called into action and to inhibit the other muscles from working, thus allowing them in the meantime to relax. The muscular sense as well as the powers of inhibition and the sense of co-ordination can in this way quickly become educated and influence the moral as well as the mental faculties.

The advantages of resistive movements are as follows:

(1) Groups of muscles or even individual muscles can be exercised while the antagonists and other muscles are relaxed. Thus the patient is enabled to concentrate his energy on the muscles in question.

(2) Contraction can be brought about very early in muscles which have been considered paralyzed.

(3) By graduating the resistance, the patient can be made to do as little or as much work as is desirable in his case.

(4) It is possible to draw blood to almost any part of the body desired, by means of isolation of muscle groups and localization of effort.

(5) The patient can by this localization of effort against resistance save time and accomplish more work of a nature to stimulate and develop.

(6) The stimulating effect of the traction applied is one of the main advantages.

The suggestive element must be reckoned with in all cases. The stimulatory effect just mentioned will greatly encourage the patient. He will take an optimistic view of his condition as he realizes his unlimited possibilities for improvement in these lines. Day by day, as these improvements manifest themselves more and more plainly, he will receive an extra uplift, and will soon become far enough advanced to catch the spirit of harmony and light heartedness so characteristic of all true advocates of physical education. Life will become filled with joy and hope beyond measure, and disease for him become a thing of the past, which, however, he now might feel almost thankful for because of the many valuable lessons taught him.

PART I.

Neck Exercises



Neck Exercises.

CHAPTER I

NECK EXERCISES

ALL rational movements of the neck tend more or less to stimulate the vital functions of the whole organism. By a thorough "toning up" of the different muscle groups of the neck, the upper ribs and sternum can be raised and abnormal cervical as well as dorsal curves corrected. The straightening of these curves will also render the course of the blood-vessels to and from the head more direct. By the resulting improvement in the circulation obstinate catarrh and other chronic affections of the head have often been cured.

By the same means connections between the cervical vertebræ are made more supple and the vital functions of the body accelerated. This may be partly due to the stimulation of vital centers situated in this region of the spinal cord. The speedy increase in strength and vitality in people who have given extraordinary attention to neck development makes this theory, in the author's opinion, probable.

On the other hand, continued inattention to developing the neck muscles will cause the head to sink forward and increase the cervical curve of the spine. The pectoral muscles will become shortened and the respiratory capacity diminished.

These weaknesses and deformities can easily be remedied by a systematic application of the following exercises, thus rejuvenating the whole organism and causing it to radiate with that superabundance of life and energy enjoyed only by those who understand how to put themselves in harmony with nature's forces.

I—Rolling of the Head

The patient sits and the operator stands behind him. One hand is placed on the forehead, the other below the occiput (Figure 1). The head rests in the hand supporting the neck, which is kept nearly immovable, while the hand on the forehead executes the movement.

The hand under the occiput works in opposition to the other, confining the movement almost entirely to the occipito-atlantal joint.

II—Turning and Bending of the Head

With nearly the same grip as before, turn the head from side to side (Figure 2), applying traction upward all the time. The movement chiefly affects the joint between the two topmost vertebræ. This movement can also be done actively by the patient while the operator resists.

The head can also with almost the same grip be bent forward and backward and from side to side, first passively, then actively, while the operator resists. The resistance should be very light in the beginning.

Figure 3 gives one of the many different positions in which these resistive head movements can be given. The head is in this position bent forward and backward (Figure 4) while the operator resists. This is a most excellent exercise to overcome the stooped position so common among all classes of people.

These movements can be taken without an assistant, either as free movements or with resistance made by themselves, or by means of some apparatus.

Wrestling and other floor work has often been the means of accomplishing great results. Carrying moderate weights on the head is also of great value. The head can, in the "bridge" position (Figure 5), be rolled forward and backward, as well as from side to side—a most excellent exercise for limbering up as well as strengthening the neck.

III—Hanging in a Suspension Apparatus

For this exercise a strap or sheet is applied around the neck and chin of the patient. A rod is fastened to the apparatus at the proper height to allow the patient to grasp it over his head (Figure 6). The patient is pulled up high enough to allow him to reach the floor with the tips of his toes; that is, to be-



Neck Exercises.



Head twisting.

gin with; later, becoming more used to it, he may be suspended altogether, first with—later, if in fairly good condition, without—the help of the rod.

The patient may at first not be able to hang very long in this position, but gradually the time can be extended. The operator must all the time be ready to let the patient down as soon as he shows signs of becoming fatigued.

A hanging apparatus to be regulated by the patient himself can easily be made by means of a sheet folded into double loops and fastened to a rope. This can be attached to the ceiling through a pulley.

The rod can be applied as before mentioned and the rope fastened to the foot of the patient in such a way that by extending the leg the body will be pulled up to the desired height.

IV—Reclining Neck Exercises

In these the patient lies on his back and the operator stands behind him. Figure 7 illustrates a method of stretching the cervical portions of the trapezius and underlying muscles. One hand on the shoulder holds the body down while the other hand forces the head in the opposite direction.

Stretch the other side in a similar manner.

V—Extension

Direct extension of the neck makes an equal pull on all the vertebrae.

With the feet anchored, the force of the pull is in the weakest portion of the spinal column. The patient will usually enjoy a pleasant stimulation after relaxation of the extension. The extension should be made with the greatest possible steadiness, the tension being lessened very slowly in all cases.

Figure 8 shows the position of the operator's hands, one under the chin, the other under the occiput.

In this position the head can be rotated, bent and rolled a number of different ways, first passively; later the operator may give slight resistance to suit each individual case.

Many of these resistive movements are best given in the prone or lying position, Figures 3, 4 and 9, for instance.

Figure 10 illustrates one excellent method of stretching the neck as well as the back. The operator is pulling the feet backward and downward, while the patient relaxes the muscles as much as possible.



Head twisting and bending backward



Head bending (a) backward and (b) forward.

Chest Expansion



EXERCISES FOR CHEST EXPANSION

CHAPTER II

CHEST EXPANSION

THE term chest expansion is applied to certain movements given for the purpose of loosening the chest and developing the respiratory apparatus. They are particularly effective in overcoming the chest-bound condition so common among all classes of people. No teacher of physical education can really succeed without a knowledge of at least the simplest of them.

Every gymnastic system should involve chest expansion, as the cardinal rule in rational gymnastics should be to keep the head up, the chin in, and the shoulders down and back as much as possible during the execution of each movement.

Allan Broman, writing on this subject, says: "Every gymnastic exercise should be done under conditions of full and free breathing. An exercise which does not permit this is bad educationally, and should be eradicated." In fact, every gymnastic exercise rightly executed is a respiratory movement.

This is of the greatest importance in medical gymnastics as well as in other branches of physical education. On the respiratory functions are dependent to a greater or lesser extent most vital phenomena. Consequently it would be difficult to pay too much attention to this very important procedure.

The expansion in natural breathing should principally be at the waist. Nearly the entire trunk wall, as well as the organs within the trunk, should also take part in the movement. That the expansion takes place at the sides and behind, especially in the regions of the lower ribs, as well as in front, is not generally understood. The majority of adults breathe with the upper chest, the lower part of the abdomen, or both. Exclusive chest breathing as well as abdominal breathing is incorrect. The entire trunk wall should participate in the movement. The majority of people seem to be very much confused in regard to this most vital phenomenon and

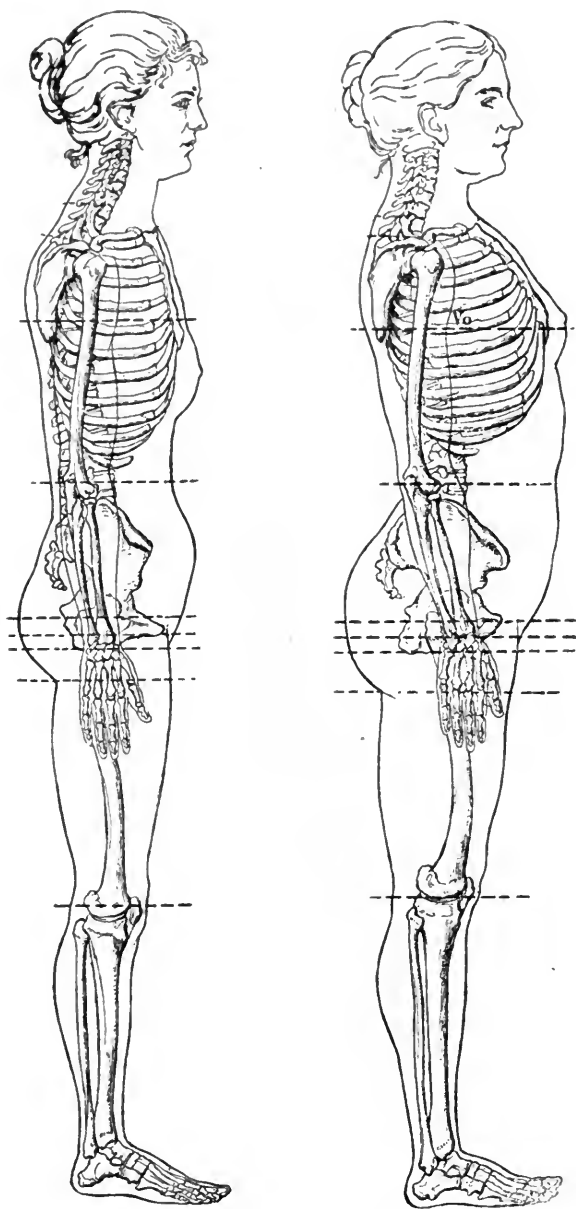
the right way of executing it. Their muscular as well as nervous system is generally so unbalanced that they are unable to grasp even the simplest and most fundamental of these principles. People who have not yet been spoiled by the degenerating influence of our modern conventional habits breathe naturally in the manner here advocated.

Those people, however, who already have been deformed and crippled by habit need the most scientific training. First, the cause of the deformity has to be removed, if possible. The common mode of dress seems to be the most important cause. Next comes the incorrect sitting habit, lack of such work as will compel the system to take in an extra supply of oxygen, lack of poise in standing, walking, working, playing, etc. The joints between the vertebræ and ribs, as well as between the individual vertebræ, must be made more supple, if necessary, by the aid of manual movements.

The tone of the trunk muscles, especially those of respiration, need to receive a thorough and systematic training; and spinal curvatures, as well as other deformities of the trunk, must be corrected.

Breathing exercises are used in several of the Eastern countries—India, Thibet, China, etc.—as a religious measure, to assist in the balancing of the higher faculties, as well as to harmonize the vital functions of the body. These different forms of breathing exercises, some simple and beneficial, others more or less fantastic and injurious, are generally advocated as an adjunct to other religious customs and practices.

The conventional mode of dress in women, with constriction of the waist, is one of the greatest of all factors in the general decadence in physical vigor so apparent among women of the present day. The natural respiration is interfered with, hindering the proper re-



THE CONTRAST BETWEEN A CORSET-DEFORMED AND A WELL-DEVELOPED WOMAN

(See latter part of page 23 and first part of page 25.)

turn of lymph and venous blood from the parts below the chest.

The abdominal as well as the back muscles are in these cases weak, and spinal curvatures are therefore common.

Deformities of the liver from tight lacing are also common, and the organs of the abdomen prevented from properly discharging their functions.

The pelvic congestion, as well as pressure on these organs, aids powerfully in predisposing to, if not, indeed, actually causing, disease of these organs, with all the disagreeable consequences, not only for the individuals themselves, but also for future generations.

The blood in crowding the veins of the internal organs will be prevented from circulating through the nerve centers, as well as the muscles, robbing these organs of that life-giving arterial blood of which they are in such vital need. The Swedish specialists usually begin their treatment with some form of chest expansion, also frequently employing this form of exercise during the course of the treatment for these same reasons. They consider it of the greatest importance that the ribs should be loose enough to allow an easy play of the chest during severe exertions as well as during rest, and even during sleep.

In order to accomplish this, the following methods are by far the most effective. They are progressively arranged to suit the feeble invalid as well as the healthy and robust individual.

The exhilarating effects of these exercises may be of even greater value than the purely physical effects. The mental effects are nearly always the more pronounced. Baron Posse, the pioneer in Swedish movements in this country, writes on these remarkable exhilarating effects as follows:

“By hastening the general circulation the respiratory exercises produce a degree of exhilaration akin to the sense of total well-being—a consciousness of an abundance of general energy, of power, and of will to do not only great deeds, but good deeds as well. They create in the individual a sense of moral repose, of consciousness of goodness as a duty, probably generated by the heightened normal functional activity—which is

neither as definite nor as well emphasized by any other physical cause; so that to breathe well will mean to live well, to live longer, and to live better.”

The effects of respiration on the circulation of the blood are briefly as follows:

1. *Respiration assists the onward progress of the blood in the veins.*

The change between positive and negative pressure during respiration will alternately increase and diminish the capacity of the inside of the lungs, driving the contents into the left auricle.

This change of pressure inside the chest will also alternately pump and force the blood out of the intrathoracic portion of the superior and inferior vena cava, in that way assisting the work of the right auricle. The flow in the intra-abdominal portion of the inferior vena cava and its branches will be promoted by the descent of the diaphragm and the tone of the abdominal muscles.

“With sedentary persons who suffer from a congestive state of the large venous trunks, an occasional deep inspiration is a powerful means of facilitating the circulation.” (Lovén.)

“In the case of persons with very thin skins, the long saphenous veins can be seen to alternately fill and empty with the movements of respiration.” (Schweigger-Seidel.)

That the movements of the diaphragm and resulting expansion of the chest further the blood supply in the liver and spleen, and also the onward progress of the contents of the stomach and intestines, has been shown by Hasse.

2. *On the Flow of the Lymph.* Inspiration increases the pressure in the abdomen and decreases the pressure in the chest, thus the contents of the abdominal part of the greatest lymph vessel in the body, the thoracic duct, are emptied into the thoracic part. Expiration reverses the pressure. The thoracic duct, however, contains valves, which prevent its contents from passing backward. The lymph is therefore driven onward into the sub-clavian vein. Owing to the competence of the valves at the orifice of this vein, the change of pressure does not cause any reflux under ordinary circumstances.



EXERCISES FOR CHEST EXPANSION

I

Lying Chest Lifting. The patient is reclining. The operator stands as in Fig. 3, grasps the patient under the back with the fingers of his two hands meeting just below the shoulder-blades. Gently arching the patient's spine by lifting with both arms, he vibrates the thorax or shakes it carefully from side to side, the patient in the meanwhile taking a full breath. While letting the patient down, he moves his hands slowly to the side of the lower chest, where he exerts gentle pressure so as to assist in the expiration. This is the gentlest of the so-called chest expansions, and can be given to bedridden patients with great advantage.

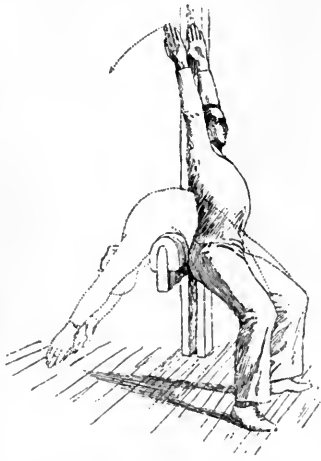
II

Lying Chest-Lifting with Arm-Raising. The patient lies with slightly elevated trunk. The operator stands behind, grasps the patient's hands and lifts his arms forward to vertical (reach) position. He now draws the patient's arms backward to stretch position, lifting the arms well, so that he and not the patient carries them (Fig. 4). During this movement the patient takes a deep inhalation, exhaling while the arms are brought back. Moderate pressure over the false ribs can be exerted by the operator at the end of the expiration (Fig. 5). This is of great advantage in aiding the movement of the ribs, making the expiration more complete.

III

Sitting Chest-Lifting with Expansion. This is the mildest form of chest expansion taken in the sitting position. The operator stands behind and supports the patient's back, grasping the upper arms as in Fig. 1.

He then lifts them in an upward and backward position, in that way making the heads of the humeri to describe a circle (Fig. 2). The patient inhales during the elevation and exhales during the reverse movement.



One of the best of all Swedish movements for expanding the chest that can be taken without manual assistance.

IV

Sitting Arm-Circling with Expansion. The operator takes hold of the patient's upper arms, drawing them in a direction backward and a little upward. The operator supports the patient's back with his own trunk, using a small cushion between to increase the expansion (Fig. 2). A moderate pressure over the false ribs can be exerted by the operator at the end of the expiration.

V

Rest Sitting Chest Expansion. The operator uses his knees for support, as illustrated in Figures 6 and 7. The patient clasps his hands behind his neck and inhales while taking the position of Figure 6. He exhales, returning to position of Figure 7. Either side can in that way be expanded separately.

VI

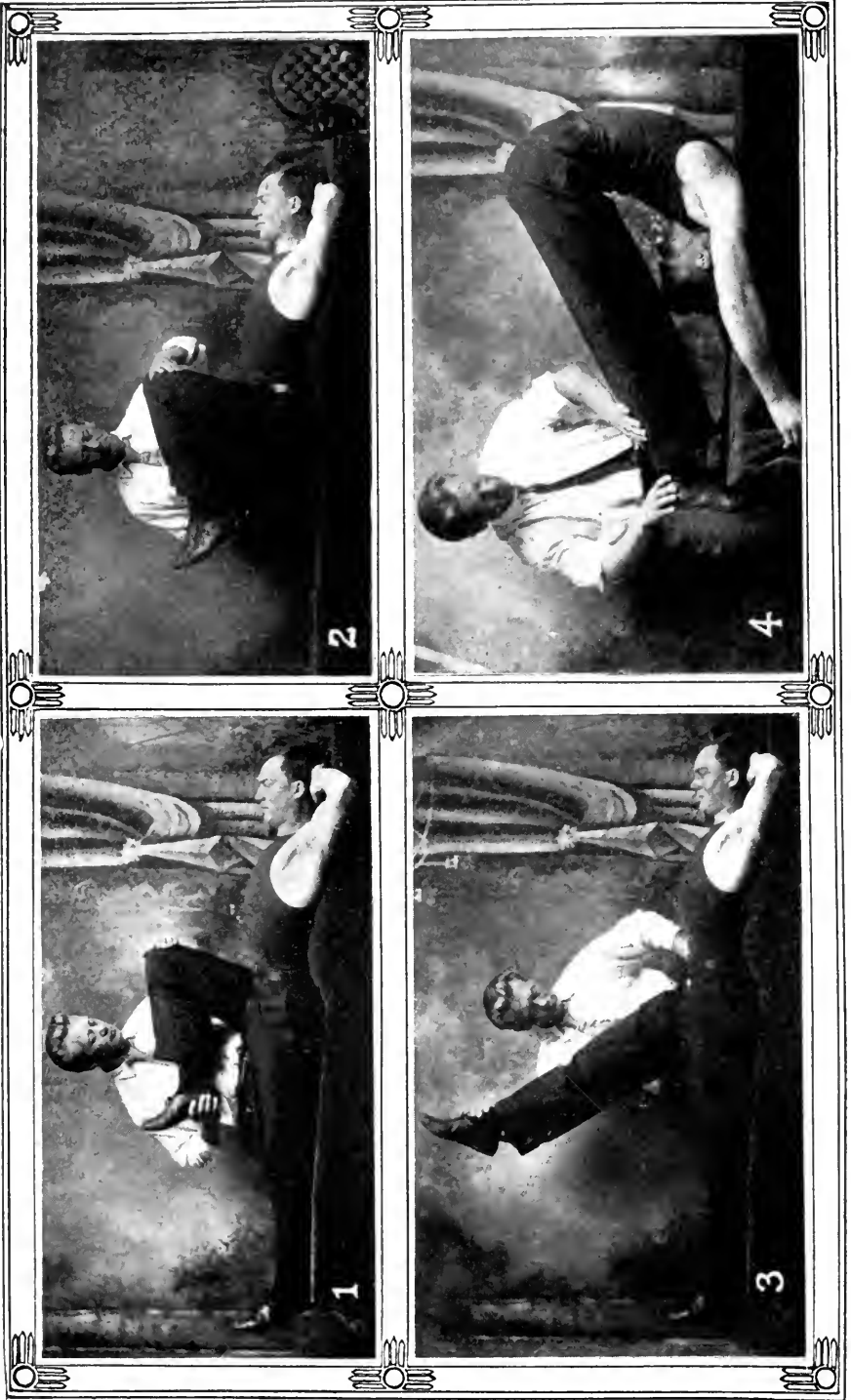
Side Lying Rib-Lifting. While giving the movements illustrated in Figures 8 and 9, the lower ribs can be lifted and lowered as the patient inhales and exhales, a most excellent way of raising depressed ribs. The middle fingers of both hands will lift up each rib by pressure upward at their angles, while the side of the chest is lifted simultaneously, as illustrated in Figure 8, the patient meanwhile taking a full breath.

During the exhalation pressure is exerted over the same ribs, as shown in Figure 9.

VII

Stretch Grasp Standing Chest Expansion. Figure 10 illustrates a movement of great value for expanding the chest. The operator placing his hands on the scapula presses forward and upward, while the patient takes a deep inspiration. The hands can then be moved one on each side of the lower chest and pressure exerted there while the patient exhales.

Abdominal Exercises



MOVEMENTS FOR ABDOMINAL EXERCISES

CHAPTER III

ABDOMINAL EXERCISES

THE Swedes, as did the ancient Greeks, have always paid a great deal of attention to the development of the abdominal muscles. Observe the magnificent muscles of a typical Swedish gymnast, or of the ancient Greeks, as exemplified in the statues that have come down to us. Even the women of Greece possessed far better abdominal muscles than does the average man of to-day. We moderns have degenerated enormously. Indeed, should we continue to deteriorate at our present rate the race would soon become extinct.

Dr. Abrams, who has done much to awaken the people to the importance of better abdominal development, says ("The Blues"):

"The erect posture of man places him at a disadvantage in several directions, notably, however, by increasing the height of the blood column, thus causing the blood to gravitate into the intra-abdominal veins. Among the many resources of nature to combat this tendency, the vigor of the abdominal muscles is paramount. The tonicity of the muscles in question is impaired by unhygienic clothing, occupation, disease, lack of exercise. . . . The sports of the ancient Greeks were specially directed toward development of the abdominal muscles. In the sculptural works of the old masters, the abdominal muscles are reproduced with as much accuracy as the other muscles of the body, and it is reasonable to assume, contrasting the art of the ancients with that of modern sculptors, that the decadence of the abdominal muscles is a modern heritage; and so are hemorrhoids, constipation,

hernia, and a multitude of other evils that may be traced to enfeebled abdominal muscles."

The author has many times succeeded in relieving contraction of the abdominal as well as other trunk muscles and establishing a more normal tone by the use of the exercises outlined in this article, alternating them with chest expansion and other forms of trunk exercises. Even patients confined to the bed or to the wheel chair, patients who at best could take but a half dozen steps without becoming fatigued, have quickly recovered by a scientific application of these methods.

I

The patient takes the reclining position, as in Figure 1. The assistant, grasping the patient's heel with one hand, lays the other on the knee. Then keeping up external rotation of the thigh, the patient bends the hip and the knee as far as possible. The operator, continually keeping

the heel in line with the axis of the body, remains passive, or assists the patient, as the case may require. The latter part of the movement is best done with the assistance of the operator.

The patient now either extends the leg with continued resistance from the operator, or the operator presses the knee while the patient resists. The latter is a more purely abdominal movement. With the knee as close to his upper body as possible, the operator places one hand on the patient's shoulder, the other hand just above the knee, and while the patient resists, the operator presses the knee down. Meanwhile the patient must extend his knee sufficiently to keep his foot off the couch.

"These are the muscles [abdominal] upon which the Greeks laid so much stress in their male and female statues, and for the development of which they prescribed so many exercises."

—*Sargent.*

"In their lives women have terrible moments when weakness in the contraction of the abdominal muscles prolongs the labor of a mother and sometimes causes death."—*Mosso.*



8



7



6



5

This is an excellent abdominal exercise, and can be moderated to suit the weakest patient.

II

The above movement can also be done with both legs together (Figure 2), and the knees closed so as to allow a firm hold of the operator.

III

The patient assumes the lying position, with the hands grasping the upper part of the table. With one hand the operator grasps the foot just below the ankle, as in Figure 3, and places the other hand over the hip on that side to steady it. The patient now lifts his foot, the operator meanwhile resisting, and care being taken to keep the knee fully extended. When further bending with straight knee is impossible, the reverse movement is executed by the operator while the patient resists.

IV

This movement can be combined with Movement III, the patient bending the knee while the operator resists; the operator then stretches it and presses the leg down straight while the patient resists.

V

Lying double leg flexion and extension is the same as in Movement IV, but is executed with both legs together, passive as well as active, with or without resistance. When the movement is given with resistance the effects are more marked, as the anterior abdominal muscles are more strongly placed in action.

VI

These movements are only preparatory to leg raising as a free movement, which can be practiced until the patient's feet touch the table on the other side of the head (Figure 4). At the beginning, this movement is best done with assistance, the operator standing behind the patient and pulling his feet downward.

VII

Movement VII can most advantageously be alternated with the sitting position, the patient touching his feet as in Figure 5.

VIII

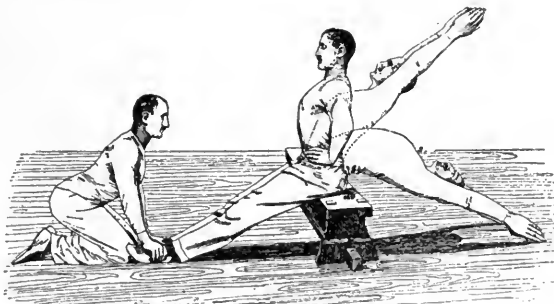
In this movement the patient takes the sitting position, usually with hips firm; allowing the trunk to move backward he assumes the position shown in Figure 6. He remains in this position long enough to respire deeply three or four times, and then raises himself to the original position again. During the progress of this exercise proper respiration is of the greatest importance.

IX

Gradually lower the trunk until it reaches the position shown in Figure 7. The effects of this exercise are similar to those of double leg bending and extending, and can be increased by keeping the patient's arm in a neck-firm position.

X

In this movement, take the position shown in Figure 8. Bend the elbow and gradually lower the body until the chest touches the floor, then return. This is a particularly good exercise for the extensor muscles of the arms and shoulders as well as for the abdominal and back muscles.



The above cut illustrates the perfect way of bending the body backward, with the chest held high and the abdomen well drawn in. (By courtesy of Norstedt & Sons, Stockholm.)



Back Exercises

BACK EXERCISES

CHAPTER IV

THE proper exercise of the muscles of the back is of great importance in overcoming the stoop so common among nearly all classes of people. The setting-up exercises given to beginners in all rational schools of gymnastics, as well as to patients treated according to the Swedish system of manual therapeutics, have as one of their main features the proper development of the back muscles, especially the deep ones. While contracting properly they will raise as well as widen the chest and stretch the muscles of the abdomen. The abdominal organs are thus drawn up and the venous flow to the chest is accelerated. The proper movements of the ribs in normal breathing are only made possible when the spinal muscles are strong and limber



Figure 2.



Figure 3.



Figure 1.

enough to do the work for which they are intended.

The vital functions of the body can thus be speedily and greatly increased. This also reacts on the mental side of our nature, giving us that self-reliance and joy of life so characteristic of those who have trained themselves according to these methods. Those who aspire to superior health, who want their whole system to radiate with exhilarating life and joy, should make it one of their first duties to train the deep back and other spinal muscles properly. This training is a vital necessity in the correction of the majority of deformed and diseased conditions.

I

The patient assumes the sitting position, with the hands on hips and the upper part of the back as straight as possible. The operator places one hand under the patient's neck, as in Figure 1. The hand on the neck presses the head forward and downward. The patient resists moderately, and keeps his head erect and his spine as straight as possible. The flexion of the trunk is continued at an angle of about 75 degrees; then the reverse movement is executed under resistance of the operator.

In order to force the patient's spine forward, the elbow of the resisting hand can simultaneously press the dorsal region forward, especially during the extension. The patient in the meantime looks



Figure 4.

upward, cooperating as much as possible with the operator in straightening the dorsal spine.

II

This movement can also be done with two assistants, each with one hand taking hold of the patient's shoulders, the other hand resting on the back between the shoulders. The forward bending is done passively. During the raising the same rules are observed as in the previous exercise, the hand between the shoulders making strong pressure and stroking downward over the dorsal and lumbar back, and straightening the same as much as possible and simultaneously assisting in the movement, with the hands resting on the patient's shoulders. (Figure 2.) The patient meanwhile looks up to the ceiling and tries to assist as much as possible in the chest expansion and straightening of the back.

III

The next step will be to have the patient do the same movement without assistance, encouraging him to do this exercise together with the other ones particularly indicated in his case, several times a day.

This is one of the favorite exercises of Dr. Kellogg, who recommends the patient to press his own thumbs vigorously against the small of the back while raising the body according to the rules mentioned in the previous exercise. (Fig-

ure 3.) The pressure of the thumbs will answer the same purpose as the pressure by the operator, and has this advantage, that the patient can take his exercise without assistance.

IV

Figures 4, 5 and 6 illustrate an exercise for the development of correct poise in standing. The heels, hips, shoulders and head are pressed against the wall, as in Figure 4. The head is

then bent backward, as in Figure 5, the heels and hips being held against the wall. The muscles of the back, especially the deep ones, are at the same time vigorously contracted, care being taken to force the dorsal spine as far forward as possible to prevent excessive curve



Figure 5.



Figure 6.



Figure 8.



Figure 7.



Figure 9.



Figure 10.

in the lumbar region.

Figure 6 shows, not a perfect, but an exaggerated standing position, the lumbar spine being forced a trifle too far forward. This exaggerated position will be very beneficial for individuals with a pronounced and long thoracic curve encroaching on the upper lumbar region.

V

The operator sits in front of the patient with one foot braced against the bar and offers resistance by taking hold of a rod, as in Figure 7, while the patient raises himself. The arms should be kept straight, and the movement should occur principally through the action of the back muscles. This is an excellent movement for stretching the spine and strengthening it.

VI

The patient places himself on his knees, as in Figure 8, the lower legs being firmly supported. He then lets himself down till he reaches the position illustrated in Figure 9, taking support with his hands on the gymnast's shoulders, while the latter takes hold of the



A good exercise for correcting hump back as well as for expanding the chest. It is very valuable in loosening the spine, and should be followed by a thorough bending forward as illustrated in the previous chapter on abdominal exercises. (See page 30, Figure 4.)

patient in front under the armpits. This same hold is used in returning to kneeling position.

From this position a number of most excellent movements can be taken which will do more to quickly increase the tone of the deep back muscles than any other movement known to the author.

VII

The body can alternately be raised and lowered with the hands behind the neck or with the arms stretched upward, as in Figure 10, first with, later without, assistance, care being taken to keep the arms and head as high as possible. The patient can also in this position bend and turn himself from side to side.

VIII

After taking any of the above-named exercises where the back becomes strongly arched, the opposite extreme, viz., a thorough stretching of those muscles, is very beneficial. Standing downward bending, with the hands touching the feet, or leg raising over the head, as illustrated on page 30, Figure 4.



One of the most effective setting-up exercises known.



Lateral Trunk Exercises



MOVEMENTS FOR LATERAL TRUNK EXERCISES

CHAPTER V

LATERAL TRUNK EXERCISES

LATERAL trunk exercises consist in twistings and sidewise bendings of the trunk, the body below the waist remaining as immovable as the first position will permit.

The exercises outlined in this article will develop the muscles of the abdomen, sides and back, by this means giving better support to the visceral organs. As the trunk is bent to one side, the ribs of the opposite side are spread apart, widening the chest and pulling the visceral organs upward. The resulting increase in intra-abdominal pressure quickly relieves portal congestion with many of its disagreeable consequences. The circulation in the spinal cord itself is often also appreciably stimulated by the stretching produced on one side of the cord and the contraction on the other, as well as by the relaxation of muscles and ligaments regulating the movements of the different vertebræ and ribs. This also reacts favorably on the functions of the vital organs as well as on the circulation in general.

I

Sitting Side Bending: The patient takes the sitting position shown in Figure 1, with feet well supported. The gymnast stands behind and puts his one hand on the back-outer side of the patient's chest, the thumb near the spine. The right elbow can be supported on the right knee, as in Figure 1, so that the right hand may be able to offer a firm resistance to the side flexion, while with the other hand, which he places on the patient's other shoulder or arm, he conducts the side flexion in the right direction.

II

Fall Standing Side Bending: If side bending be performed over a solid object, as in Figure 2, this object forms the fixed point around which the bending takes place. The gymnast does not offer any resistance, but only sees that the movement is performed as accurately

and as powerfully as possible. After a little practice younger persons can easily be suspended during this kind of side bending, the feet leaving the floor for short periods at a time, a most excellent way of correcting lateral curvature of the spine.

III

Forward Lying Side Bending: The patient keeps his hands on the gymnast's shoulders, as shown in Figure 3, while the latter takes a good hold of the patient's shoulders and gradually bends his trunk over to the side as far as possible. Counter pressure on the greatest convexity of the spinal curvature is exercised by another gymnast. Children require only one gymnast, who then places himself at the side of the patient, that side to which the bending is directed, and lets the patient receive support on his forearm, which is stretched out horizontally. He exercises counter pressure with his other hand. In all these movements an increased stretching of the spine and an increased mobility are gained.

IV

Side-Lying Raising: The legs alone rest on the apparatus, as shown in Figure 4. The leg nearest the chair rests on it from the hip to the foot. The other leg rests on the chair only with the lower part and should be behind the other. The instructor stands behind the patient and sees that the movement is taken correctly. During the intervals of rest the instructor gives support by placing his arm under that shoulder of the patient which is turned toward the floor. The arms of the patient may be held, as in Figure 4—the arm corresponding to the side turned up to be held in hips firm, the other in neck firm position.

This movement is often given for strengthening the muscles on the convex side of a lateral curvature of the spine, besides the more general effects mentioned above.



MOVEMENTS FOR LATERAL TRUNK EXERCISES

V

Sitting Trunk Rotation: The patient takes position shown in Figure 5. The operator grasps the patient around the elbows and rotates him passively until he comes in the turn position, as illustrated. The patient then rotates his body back to the original position, while the operator executes resistance in front of the posterior elbow and behind the anterior one with some movement upwards.

VI

Plane Twisting (Figure 6): The operator stands behind the patient and close to him, places one hand behind the patient's shoulder, and lays his other arm over the other shoulder. The patient leans backward against the operator, who puts his hand so that the posterior surface of his (the operator's) arm and hand rests against the patient's back. Resistance will here be placed on the patient's trunk and not his arm, as often incorrectly happens. The patient's body is now turned forward outward. The patient should be fully supported throughout the movement. To reverse, the grasp is changed, so that the

movement always occurs to the side of the over-grasping arm.

VII

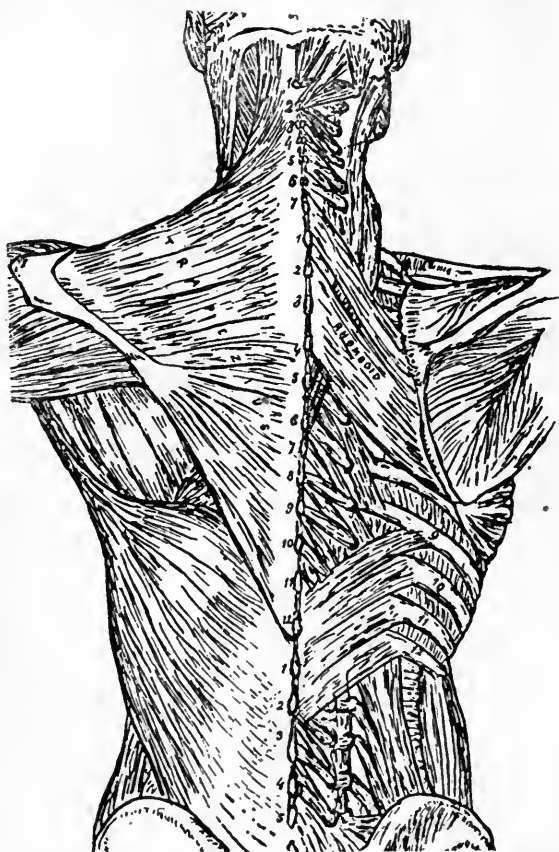
Figure 7 illustrates another way of twisting the body without the use of any special apparatus. The patient's knees are firmly supported by the operator, who at the same time grasps the shoulders as illustrated. The movement is executed like that previously described.

VIII

Figure 8 illustrates a good method of giving trunk twisting in the hanging position. The feet are supported and fixed on the floor to keep them from moving while the body is turned by the assistant as illustrated.

IX

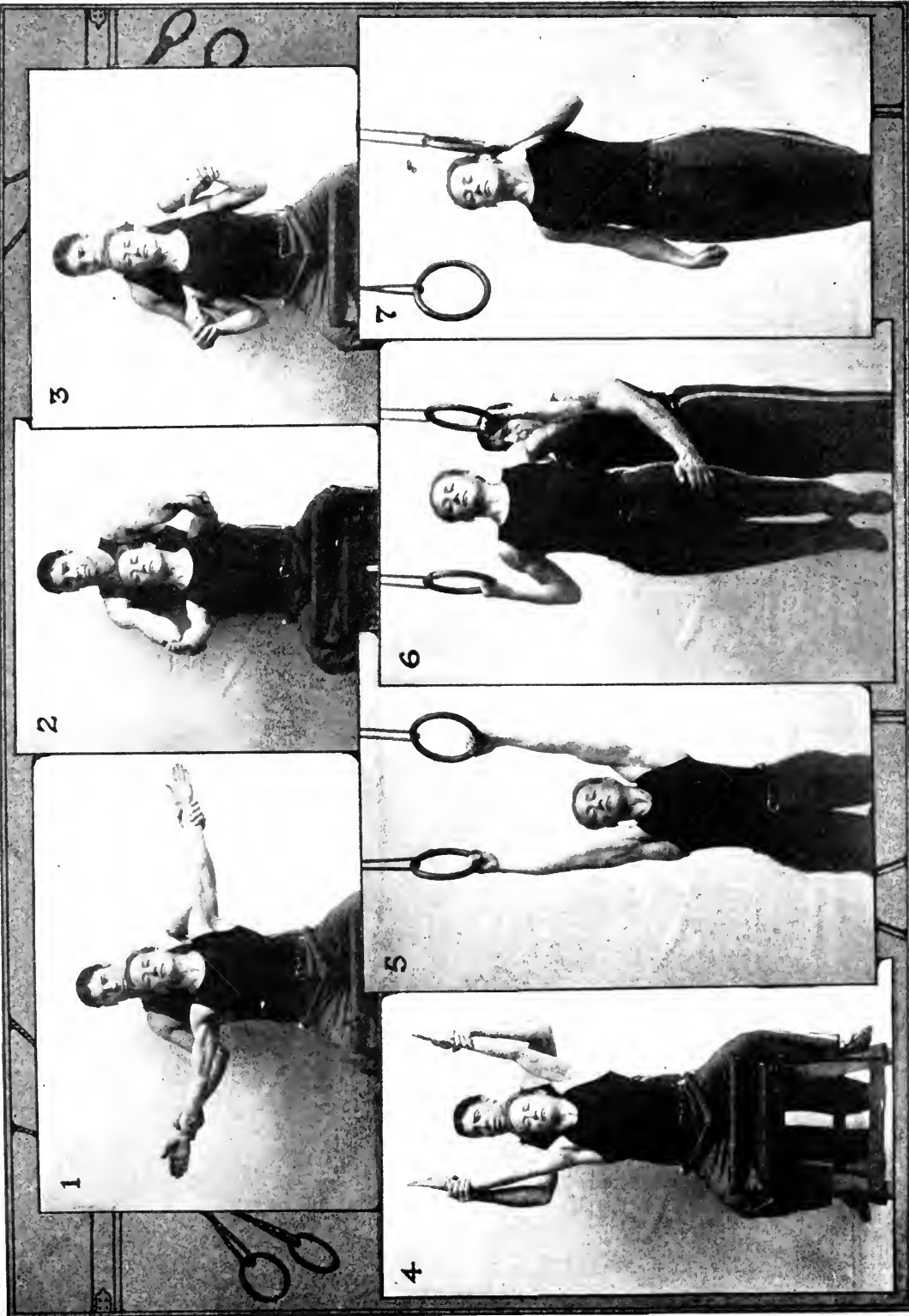
The body can also be turned, as in Figures 9 and 10, with bent as well as straight knees. This excellent twisting movement can very well be executed independently by persons with average strength. It has a powerful stimulating influence on the peristaltic movements of the lower bowel and is also very helpful in relieving portal congestion, besides the more general effects mentioned above.



Deep and superficial muscles of the back, showing how mobile every portion of the spinal column should be. (By courtesy of Dr. A. Still Craig.)



Corrective Arm Movements



MOVEMENTS FOR CORRECTIVE ARM WORK

CHAPTER VI

CORRECTIVE ARM MOVEMENTS

IN examining gymnasts in this country the author has found the great majority of them "chest bound," with shortened chest muscles and diminished width between the shoulders. The mobility of the shoulder blades in these cases is generally deficient. The blades protrude more or less, while their upper anterior parts, from which the smaller chest muscles originate, are drawn forward. In view of the fact that the chest muscles are attached to the front of the chest, it becomes evidently apparent that the shoulders should be made to remain in their normal position. If already rotated forward, they should be made to return where they belong by means of such exercises as are described below. By means of these or similar movements, a strong tension is brought to bear upon the chest muscles, increasing their extensibility as well as widening the region of the collar bones. These movements will also assist in raising the chest. The shoulder blades will sink and flatten on the back in a more natural manner.

The backward curve of the spine is simultaneously pushed forward through the contraction of the muscles attached to the shoulder blades, also by the deeper back muscles. The raising and widening of the chest will enable the organs in it, as well as those in the abdomen, to perform their functions more naturally.

When the body is suspended from the hands, as in Figure 5, the chest muscles are stretched, pulling the chest upward. The chest will also widen laterally, especially if the body is made to swing from side to side.

These latter exercises are especially useful in drawing apart the vertebrae, particularly the lower ones, relieving spinal congestion with all its disagreeable consequences. They have therefore been found very useful in overcoming constipation and other weaknesses, especially in combination with abdominal and lateral trunk movement, deep breathing of pure air, and other exer-

cises, diet, water, light, favorable mental conditions, etc. Nearly all the effects mentioned above are increased when the arms are properly bent, as illustrated in Figure 6. The position illustrated in Figure 8 is incorrect and often harmful—a fact too often overlooked by the majority of physical directors. The power of the inspiratory muscles is especially increased by the correct execution of the above movements, to say nothing of the development of the arms themselves. The strength of the arms may be more than doubled in a comparatively short time by the systematic use of these movements. They ought, however, to be alternated with lighter movements, so as to prevent stiffening from too much heavy and one-sided work.

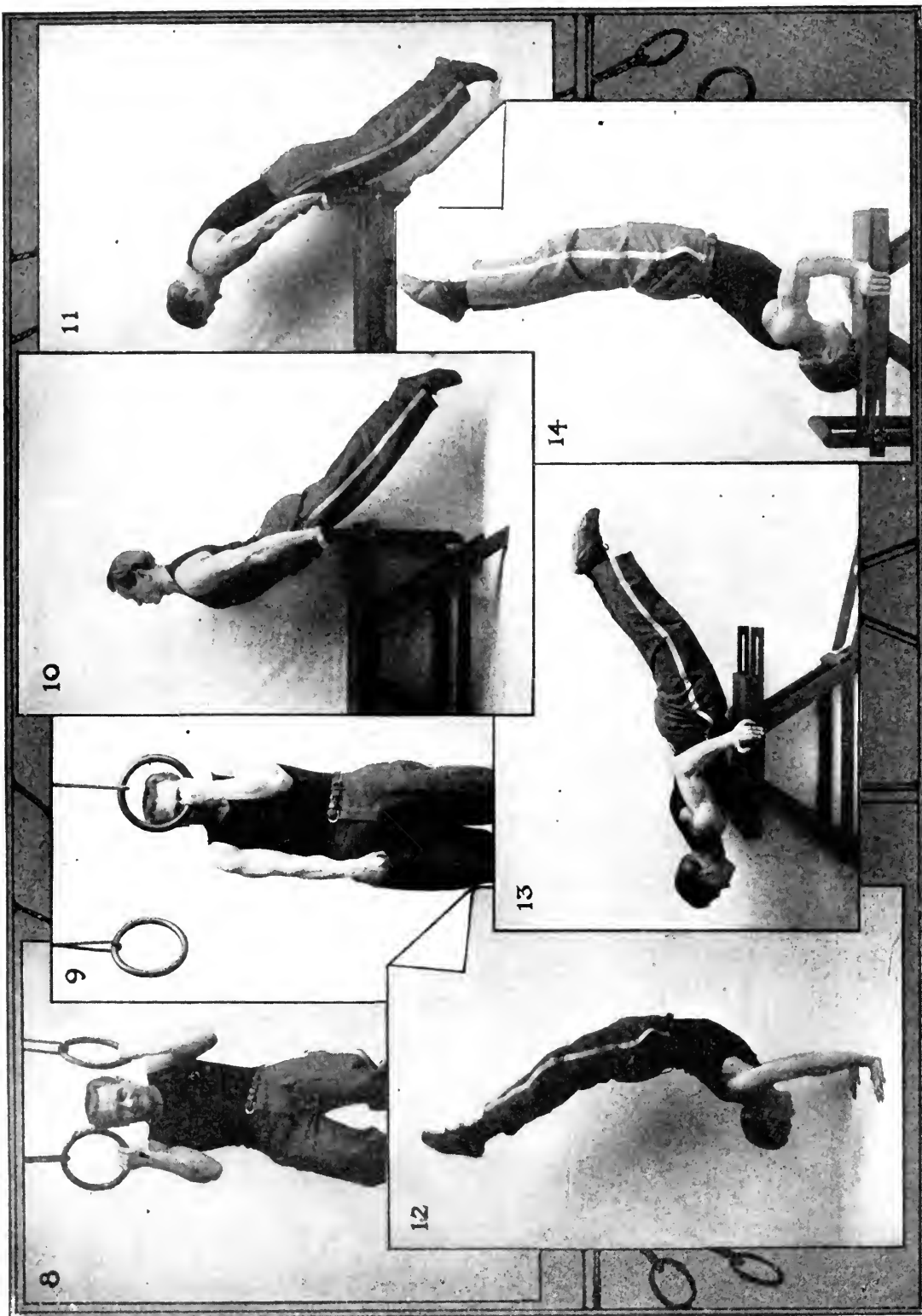
I—Arm Carrying

The pupil stands in front of the teacher with his arms in the position illustrated in Figure 1. The teacher grasps the pupil's arms as illustrated, and pushes them forward into the position illustrated in Figure 2, under a moderate resistance. The pupil now moves his arms back to the commencing position (Figure 1) under resistance from the teacher, the latter pressing the pupil's arms just a little farther backward when the limit of voluntary motion is reached. Repeat five or six times as evenly and thoroughly as possible. The teacher can also stand in front of the pupil while executing the movement.

II—Arm Stretching Upward

In the position illustrated in Figure 3, the arms are thoroughly bent at the elbows, the tips of the fingers touching the shoulder as illustrated. The upper arms are rotated outward to some extent.

From this position the arms are stretched vertically upward until they become parallel, the palms of the hands facing one another (Figure 4). The teacher guides the motion and executes a moderate resistance both ways, care



MOVEMENTS FOR CORRECTIVE ARM WORK

being taken to hold the arms steady for a few seconds in the proper position as nearly as possible in the way they are illustrated above.

This movement is also powerful in expanding the chest, increasing the strength of the inspiratory muscles and elevating the abdominal organs.

III—Hanging by the Arms

This exercise can be taken on a horizontal bar, trapeze, rings or similar apparatus (Figure 5). The distance between the hands should not be less than the shoulder width, arms should be straight, and the body carried the same as in the fundamental standing position. The head, however, should be carried a little further backward.

This movement should not be given to persons who are very weak or troubled by advanced heart or lung disease.

IV—Hanging Arm Bending

This movement should first be done with both arms and with the help of an assistant who knows how to correct wrong positions (Figure 6). Later it may be executed with the help of only one arm, as in Figure 7.

The pupil raises himself as high as possible. The head, elbows and legs should be carried well backward, legs straight and the chest well forward. Figures 8

and 9 illustrate the incorrect and often harmful way of executing the above-named movement. The chest will be cramped and the shoulders drawn forward in these positions.

V—Balance-Hanging Position

Figures 10 and 11 show the right and wrong ways of taking the balance-hanging position. When the arms are held straight, head high and the chest well expanded, the body and legs form a graceful curve backward, a most powerful corrective exercise. The opposite effects result, however, from allowing the body to remain in the position shown in Figure 11—indeed, the effects may be positively harmful.

The balance-hanging position can be taken in a school-room, the pupils standing in the aisle and placing their hands on the desks on either side of them.

VI—Hand-Stand Exercises

Figure 12 shows the vertical hand-stand position, and Figure 13 the horizontal, the feet in the latter position, however, being a trifle high.

Figure 14 shows the arm bending from the vertical hand-stand position, a powerful arm as well as shoulder exercise. The muscles of the neck, back and other parts of the trunk are also powerfully exercised.



A pose to show the muscles of the shoulder and arm and how they may be used to elevate the chest without apparatus of any kind.



CORRECTIVE ARM MOVEMENTS

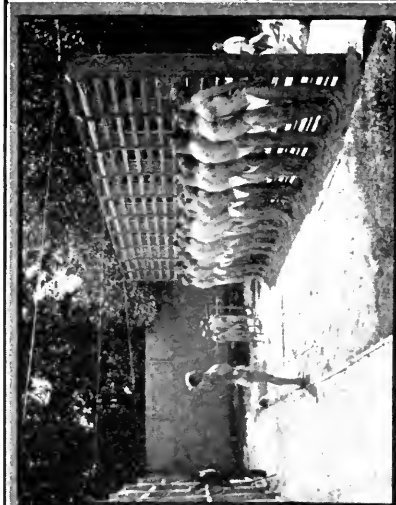
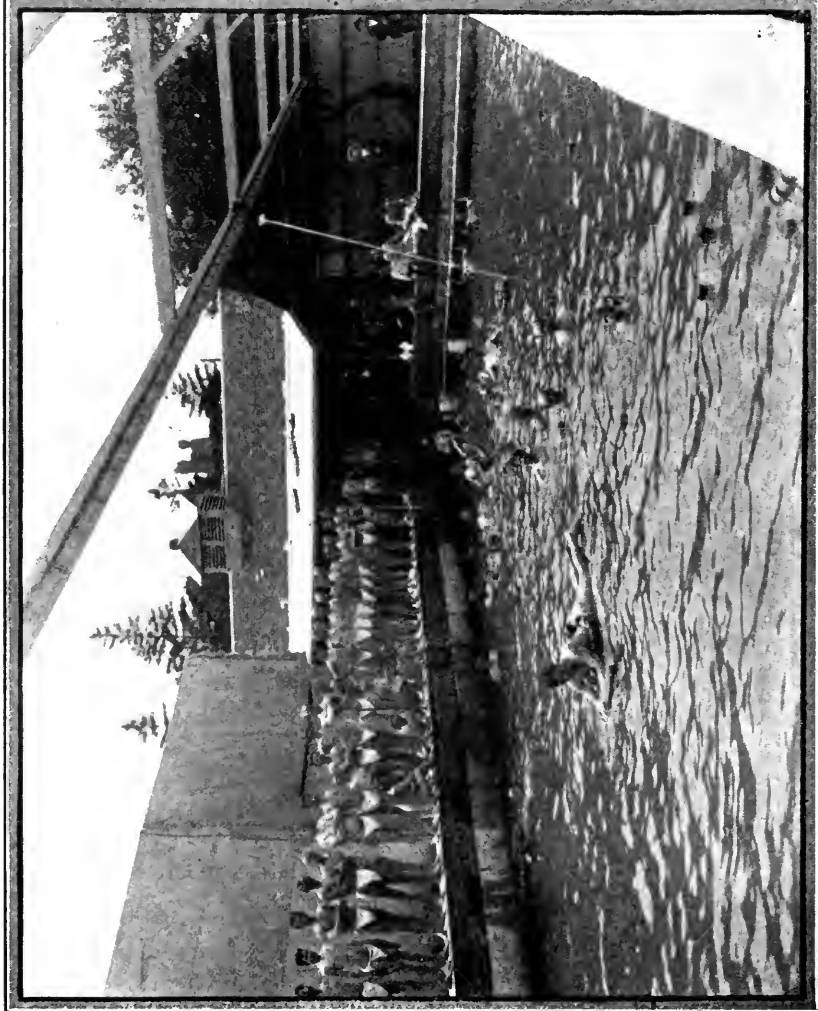
Reach position.

Stretch position.

A movement in shoulder-blade exercise.

Yard position.

Hips grasp, stride standing, side bending.



THE AUTHOR'S SPECIAL CORRECTIVE CLASSES, WHICH ARE GENERALLY FOLLOWED BY A RUN AND SWIM



Chair Exercises



CHAPTER VII

CHAIR EXERCISES

THE exercises described below are the outcome of many years' experimenting and practicing for the purpose of simplifying and popularizing the very best and most effective of all trunk exercises. The latest discoveries in kinesiology and orthopedics have been so simplified as to make them accessible to all common-sense people. With a little extra instruction, either personal or by correspondence, thoughtful people will be able, by means of these simple exercises, to relieve themselves not alone of stiffness and muscular weaknesses but actually to overcome many serious deformities, more than double their vitality, and thus cure many of their ailments.

The exercises described in the previous chapters are all of such a nature as to enable students to take them without an instructor, providing they adhere to the directions as given. The following, however, are the simplest of the previously described exercises, especially selected because they are so easily taken without the aid of an instructor.

Sitting Backward-Bending of the Trunk

Sitting as in Figure 1, bend backward as far as possible (Figure 3). Keep the chest high throughout the movement. If there is difficulty in holding the chest up, do not bend any farther than convenient for the maintaining of a good position. Figure 2 illustrates a simple way of bending backward with a well raised chest. Gradually the incline can be increased until the floor is reached, as illustrated in Figure 3.

The hands are, to begin with, held on the hips, as in Figure 1. As the strength increases, they may advantageously be held behind the neck (Figure 2), or stretched over the head (Figure 3). In order to insure a good posture of the chest, the position illustrated in Figure 1 may be taken before beginning the exercise.

Lying, Leg-Bending and Stretching

Take the position illustrated in Figure 4, with well bent knees and raised

hips supported by a pillow, as illustrated. Stretch the legs upward (Figure 5), sidewise (Figure 6), forward (Figure 7), backward (Figure 8), and downward (Figure 9). To begin with, the knees may be kept well bent while swaying from side to side, as in Figure 10.

These excellent abdominal exercises are also very good for limbering the spine, particularly the lower part. They are especially useful in relieving portal and pelvic congestion, constipation and sluggish activity in the pelvic and abdominal organs.

Back Exercises

Take position of Figure 11, with feet well supported and pillow under the thighs. Raise the trunk until it comes in the position illustrated in Figure 12. Continue this exercise until tired. As the strength increases, put the hands behind the neck, as in Figure 2, or stretched over the head as in Figure 3. This will increase the lever, necessitating a firmer holding of the back muscles, a thing of very great importance in the correction of spinal curvatures, as well as sunken chest, prolapsed abdomen, etc.

Side Bending Exercises

Take the position as illustrated in Figure 13. Lower to the position of Figure 14 and return. The legs alone rest on the apparatus, as shown in the figures. The leg nearest the chair rests upon it from the hip to the foot. The other leg rests on the chair only with the lower part, and should be behind the other. The arms may be held as in Figures 13 and 14, the arm corresponding to the side turned up to be held on the hip, the other behind the neck. This movement is often taken for the purpose of strengthening the muscles on the convex side of a lateral curvature of the spine, besides the more general effects already mentioned.

These exercises are best given to beginners by an instructor, who then may use the methods of teaching and manipulating illustrated in the previous chapters.

CHAIR EXERCISES
(See page 57.)



CHAIR EXERCISES
(See page 57.)

11



12



14

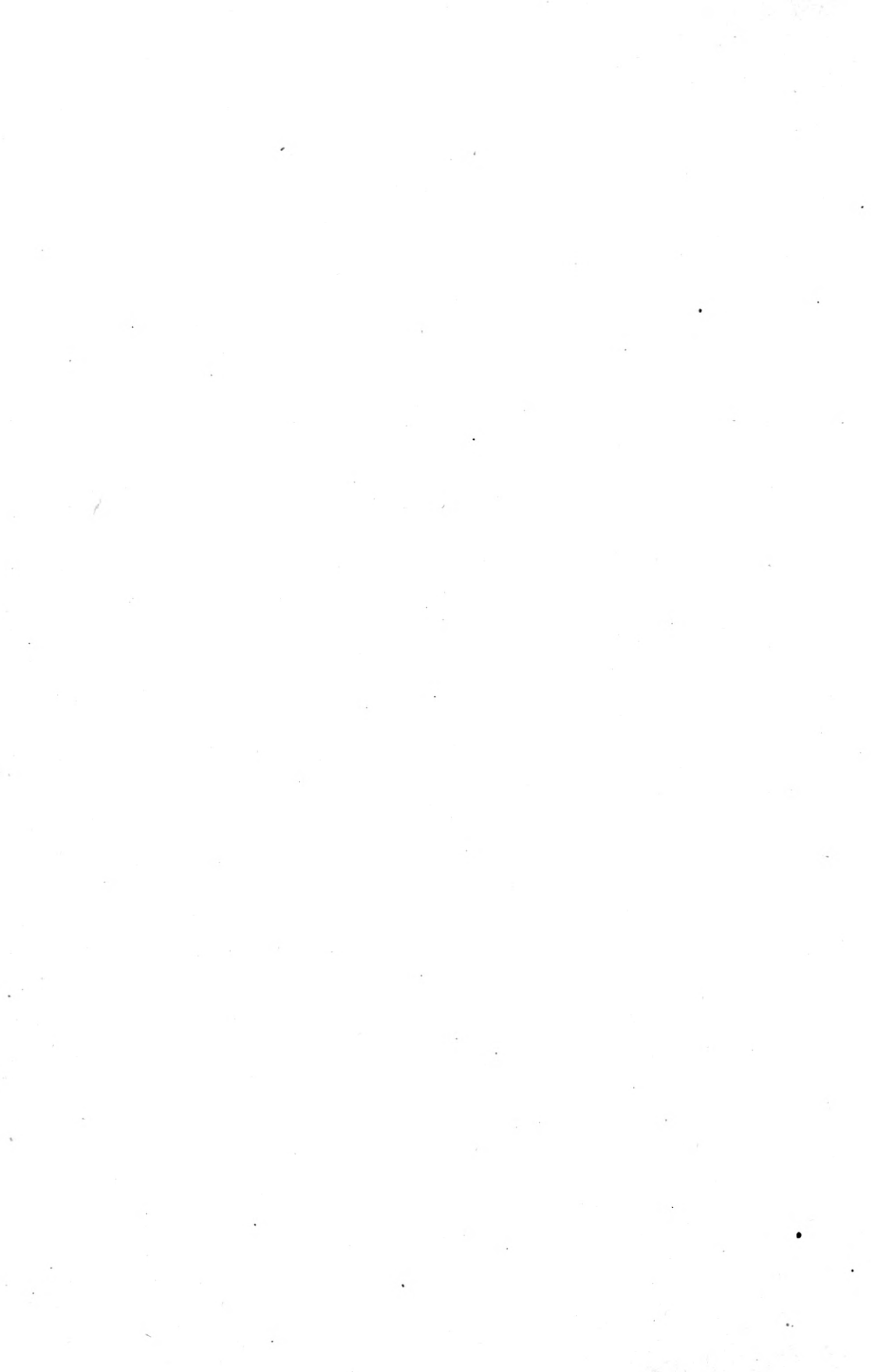


13





PART II.



Corrective Barbell and Wand Exercises



CORRECTIVE BARBELL AND WAND EXERCISES

PROGRESSIVELY ARRANGED IN TWENTY-FIVE LESSONS

REGULAR progression in Physical Culture is of the greatest importance if the best results are to be obtained. This is accomplished by increasing the number of the exercises and by making the exercises more difficult, requiring more strength and mental concentration.

The duration of an exercise may be increased and the weight made greater by changing the position of the body, in that way making longer levels for the trunk muscles to control, or by increasing the weight of the wand or barbell. The wand, however, ought not to be too heavy. A good way of testing this is the following: Grasp one end of the wand with your strongest hand. Now lift it till the arm as well as the wand comes in the horizontal position. See Figure 10. If the wand can be held in this position a few seconds, it is not too heavy for an average individual. The position of the feet and body can also be changed so as to make it more difficult to maintain equilibrium, necessitating a firmer holding of the muscles.

I have in these lessons endeavored to give a systematic progression of wand exercises based on the Finnish and Swedish systems and graded so as to make them applicable to the weak invalid as well as to healthy and robust individuals. Even children down to eight or ten years of age are wonderfully benefited by these exercises, as it gives them that erect carriage and alertness of mind so characteristic of students of these systems of gymnastics. If taught by competent, enthusiastic teachers, their moral as well as their physical and intellectual powers will be greatly strengthened, and their courage, confidence and self-control will be increased, the exercises thus proving of great educational value for development of both mind and body.

The progression should not be made too rapidly, but in order to accomplish the most in the shortest possible time we have been obliged to omit many excellent movements, only accepting those which have proven of special value. The pupils are therefore advised never to

leave an exercise until it can be done as well as their degree of physical culture at the time will permit. Do not hurry too much for the sake of variety, but work steadily and conscientiously, and wonderful results will follow as a natural consequence. More can often be accomplished in a few months by progressive exercises taken systematically and with enthusiasm than by several years of irregular work without definite system.

Be sure to put vim and enthusiasm into your work. A very good idea is to work in front of a large looking-glass, taking care to have the windows sufficiently open to allow an abundant supply of fresh air to enter the room. Remove as much clothing as possible without chilling yourself too much and train the skin by cold baths, friction, sun and air baths, etc.

Take care to keep the body in as pure a condition as possible, breathing only pure air, drinking the purest water and eating moderately of the purest of food.

Above all, maintain a cheerful spirit under all circumstances. Keep in mind that you are not only helping yourself by all these things, but by your example and practical instructions you may help thousands of others. The world is greatly in need of instruction in these lines, and it is our earnest hope that these lessons will prove helpful to many, guiding them on the road to health and symmetrical development.

Fundamental Position (Fig. 1)

1 In this position "the heels are together and on the same line; feet turned out equally and making with each other an angle of about 90 degrees; knees straight without being stiff; the body erect on the hips, which are drawn slightly backward; the chest well expanded; the shoulders drawn backward and downward so that they are level;" the arms should be straight and wand grasped as in Figure 1, the head erect, the chin drawn in; the eyes looking straight forward, not downward; the weight of the body carried by the balls of the feet. The breathing should be free.

1



2



3



4



BARBELL EXERCISES

2 Fig. No. 11 illustrates the directions used in the foot placings, toe placings, and fallout positions. The right foot is supposed to keep its place while the left one is moved in the directions: 1, forward inward; 2, forward; 3, outward; 4, sideways; 5, backward outward; 6, backward; 7, backward inward.

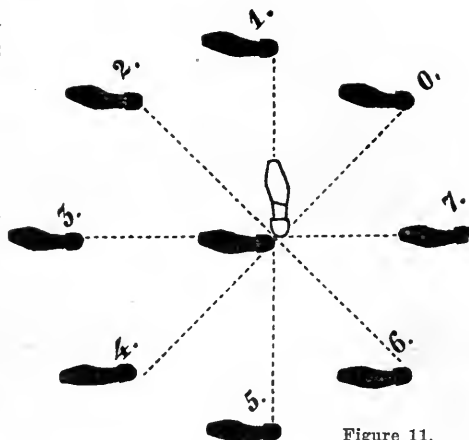


Figure 11.

Arm Movements

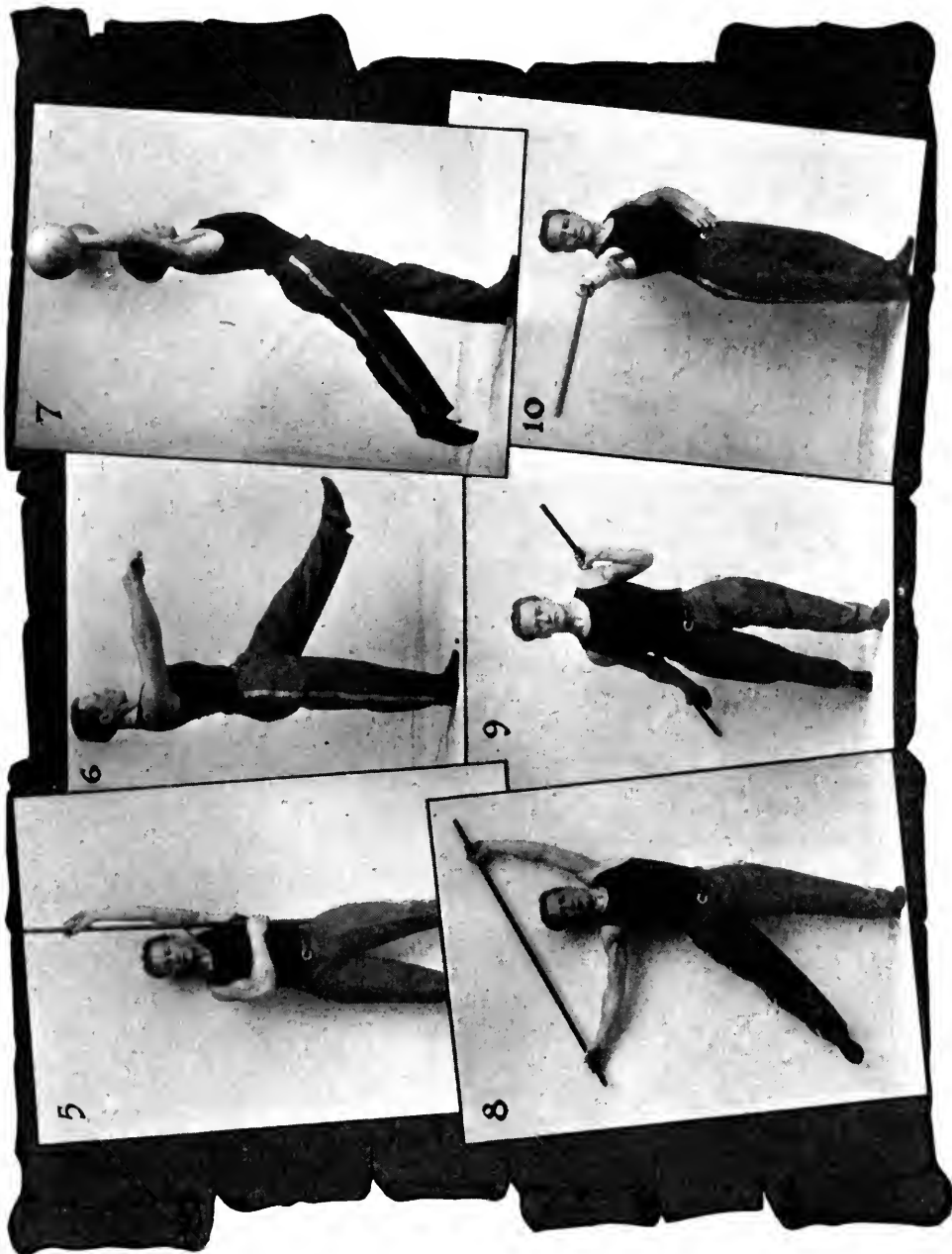
- 3 Without changing the fundamental position of Fig. 1, the wand is lifted upward by bending the arms till it comes **IN FRONT OF THE SHOULDERS** (Fig. 3). The
- 4 wand can also be lifted *forward* till the arms become horizontal (Fig. 6). In this position the shoulders are kept low and well back so as to force the chest upward. If the wand from this **FORWARD** position is moved sideways, for instance to the left, till the left arm becomes straight sideways and right arm forward, it is said to be
- 5 **OBLIQUELY TO THE LEFT**. If it is then pushed through the left hand till the right hand comes in front of the left shoulder, the wand
- 6 is said to be **LEFT SIDEWAYS**; and if the left arm from this last position is carried upward, keeping the right hand in front of the left shoulder, the wand is said to be
- 7 lifted **LEFT UPWARD** (Fig. 5). In the same way the wand can be lifted **FORWARD, OBLIQUELY TO THE RIGHT, RIGHT SIDEWAYS, and RIGHT UPWARD**. If the wand is held upward as in Fig. 7, one arm, for instance the left, can be lowered, straight sideways, till the wand comes in position of Fig. 8. This position
- 8 is called wand **LEFT UPWARD**
- 8 **RIGHT SIDEWAYS**. If the left arm is carried forward in the horizontal plane till it comes in the di-

rection outward, the arm is said to be lifted **RIGHT UPWARD LEFT OUTWARD**, and in the same way the left arm can be moved backward to the position **RIGHT UPWARD, LEFT BACKWARD OUTWARD**.

We have now nine different positions to which the wand can be

lifted directly from the fundamental one.

- 1 Wand in front of shoulders (Fig. 3) (3).
- 2 Wand forward (Fig. 6) (4).
- 3 Wand forward obliquely to left (right) (5).
- 4 Wand left (right) sideways (6).
- 5 Wand left (right) upward (Fig. 5) (7).
- 6 Wand upward (Fig. 7).
- 7 Wand left (right) upward, right (left) sideways (Fig. 8) (8).
- 8 Wand left (right) upward, right (left) outward (9).
- 9 Wand left (right), upward, right (left) backward outward (10).
- 11 The wand can be lifted above the head to horizontal position **BEHIND THE SHOULDERS** (Fig. 2), and if one arm, for instance the left, is stretched sideways so that the right arm becomes bent, it is
- 12 said to be **BEHIND THE SHOULDERS LEFT SIDEWAYS** (33). If the wand is moved above the head, with one hand only, for instance the left, keeping the right arm stretched downward, the wand
- 13 comes **BEHIND THE LEFT SHOULDER** (Fig. 9). In this position the left elbow is drawn as close to the side of the body as possible. The bent arm can then be stretched down till both arms become straight, when the wand is
- 14 said to be **BACKWARD DOWNWARD**. During some exercises the



WAND EXERCISES

- 15 wand is held **BEHIND THE BACK IN FRONT OF THE ARMS** (Fig. 4), which should be taken the simplest way possible. During other exercises the wand is held **IN ONE HAND**. The wand is grasped in the middle, and the arm can be bent either to right angle or doubled, when the hand should come as close to the shoulder as possible. This makes six more positions in which the wand can be moved from the fundamental:
- 10 Wand behind the shoulders (Fig. 2) (11).
- 11 Wand behind the shoulders, left hand sideways (12) (33).
- 12 Wand behind one shoulder (Fig. 9) (13).
- 13 Wand backward downward (14).
- 14 Wand behind the back in front of the arms (Fig. 4) (15).
- 15 Wand in one hand (16).

- From the position of the wand **IN FRONT OF THE SHOULDERS** the arms can be stretched downward, forward, sideways, or upward. If the stretching be done with more force, it is designated as thrusting. The arms can also be stretched upward from the position of **WAND BEHIND THE SHOULDERS**. The arm may be stretched in any of these directions while the wand is grasped in the hand. If the wand is grasped, for instance in the right hand, and is held downward, it can be carried forward, upward, backward, and downward, which is called **WAND CIRCLING**.

- These movements not only strengthen the muscles of the shoulders, but also greatly increase the mobility of the joint itself, and if done with deep breathing they will also expand the chest, increasing the venous flow as well from the head as from the abdomen. Increase moderately the weight of the wand and you increase the value of these exercises. Soldiers practice it with their guns.
- 21 If the wand is held in one hand and lifted forward, the arm can be twisted around its own axis inward and outward, very much in the same manner

as a key is turned in a lock. This twisting will strengthen the muscles of the arm, especially those of the forearm, and if the wand during a continuous twisting is carried upward, sideways, and again forward, it will also greatly strengthen the shoulders and the chest, at the same time as its derivative power is increased.

LEG MOVEMENTS

22 Feet Closing and Opening

The balls of the feet are lifted from the ground and, rotating on the heels, the feet are brought quickly together so that their inner borders touch when they are again placed wholly on the floor. Following the same directions the feet are turned out.

23 Heel Raising and Sinking

The heels are raised as high as possible from the ground. They are then lowered with moderate speed without tipping the weight of the body backward.

24 Foot Placing

One foot is lifted and moved parallel with itself about twice its own length in any of the directions, forward inward, forward, outward, sideways, backward outward, backward or backward inward (2) (Fig. 11), and placed on the ground with a gentle pressure, the weight of the body being supported equally by both legs. Foot placing sideways is called stride standing (Fig. 5).

25 Toe Placing

One leg is lifted with extended knee and ankle sideways, backward-outward, backward or backward-inward (2) (Fig. 11), and lowered with the toe against the floor about one foot-length from the other foot. The other leg, which should be straight, receives the weight of the body. The chest should be well arched, head up, and the body erect (Fig. 9). This is a beautiful movement, and because it is especially good with deep breathing, it is often used at the beginning and the end of several lessons. It has a powerful influence in expanding the chest, and aids greatly in giving the body a good carriage.

26 Knee Bending (Fig. 2)

After raising on toes, the knees are bent without leaning the body forward or pelvis backward. The knees should be turned out and body kept erect. This exercise can also be taken with foot placing in any of the seven directions, forward inward-backward inward (2) (Fig. 11), and combined with wand exercises in different ways (Figs. 1-10) (1-20).

27 Knee Upward Bending and Stretching (Figs. 3, 6, 7, 8)

The leg is lifted forward and upward until the knee and hip are bent at right angles. The instep is stretched so that the toes are pointing downward, the knee pointing outward. The other leg should remain straight, the body kept erect, and the shoulders on the same level. This bending is always done in the same way, no matter in what direction the leg is to be stretched. The stretchings, which can be done forward, outward, sideways, backward-outward, or backward (2) (Fig. 11), are always done thoroughly and powerfully. The exercise can be combined with wand lifting in front of the shoulders (3) (Fig. 3), and arms stretching or thrusting in the directions forward, sideways, or upward (17, 18).

28 Leg Lifting

The leg is lifted with extended knee and ankle as high as possible in the directions forward, outward, sideways, backward outward, or backward (2) (Fig. 11), without letting the body lean over to the opposite side more than necessary (Figs. 6, 7, 8). If the lifting is done quickly, and immediately followed by a sinking, it is called leg throwing.

29 Leg Circling

The leg, well stretched, is lifted forward and carried in a wide and high circle sideways and backward, and is again lowered to the commencing position, after which the other leg repeats the exercise. The exercise can also be repeated several times with the same leg before changing to the other leg. The body should be erect and the legs well stretched. During the exercise the wand

can be held in front of or behind the shoulders (Figs. 2, 3) (3, 11), behind the back in front of the arms (Fig. 4) (15), or it can be lifted and moved in different directions as indicated in the lessons. This is also a balance exercise, and will bring a great many of the muscles of the body into play. It has a derivative action on the inner organs, and strengthens greatly the abdominal and back muscles as well as the ligaments about the hip joint.

30 Leg Swinging

The leg is lifted forward and then swung as a pendulum in even time backward and again forward, keeping the body erect and legs well stretched. The swinging can also be done sideways and inward. The head should be erect and the body moved not more than necessary. During the swinging the wand can be held in front of or behind the shoulders (Figs. 2, 3) (3, 11), or behind the back in front of the arms (Fig. 4) (15).

31 Fallout Position

The body is allowed to fall in either of the directions: forward inward, forward outward, sideways or backward outward (2) (Fig. 11); one foot is lifted slightly from the ground and moved between two or three times its own length. The knee of the moving leg should be bent at right angles and remain so when the foot is placed on the ground. This foot carries most of the weight of the body, both feet firmly resting on the floor (Fig. 4).

32 One knee, as for instance the right knee, is bent, the body inclines forward and left leg is lifted backward so that the arms, trunk and backward leg form an even, nearly horizontal curve.

TRUNK TWISTINGS AND BENDINGS

The trunk twistings and bendings are described in the lessons, except the following, which it is considered best to describe together:

33 Take a large stride standing position. The wand is held on the shoulder, left (or right) arm sideways. If using an iron wand, it will be easier to let the forearm and hand rest over

the bar, as in Fig. A. This grip will make the movements steadier.

- 34 Take position of Fig. A, wand on the shoulders, left arm sideways. Twist the body to the right till it comes in position of Fig. B. Now twist to the left as far as possible without bending the knees or changing the position of the feet

arm stretched. Bend the body alternately from left to right, 4 to 12 times. Then change the position of the wand, bending the left and stretching the right arm. Repeat the bendings.

- 36 Take the position of Fig. A, left arm stretched. Turn to the right till the body comes to the position of Fig.



A



B



C



D



E



F



G

(Fig. C). This twisting can be continued alternately to the left and right, swinging slowly, as a pendulum, from 10 to 100 times. Then change the position of the wand to the right side by bending the left and stretching the right arm, and repeat the twistings the same way.

- 35 Take the position of Fig. A, left

B. Bend to the right (Fig. D). Return to position of Fig. B and then bend to left (Fig. E). Bend 4 to 12 times each way; turn forward; change the position of the wand, right arm stretched as in previous exercises; turn to the left and repeat the bendings the same way.

- 37 Take the position of Fig. A, left

arm stretched. Turn to the left till the body comes to the position of Fig. C. Now bend alternately to right and left, as in previous exercise (Figs. F and G), 4 to 12 times each way. Change wand to the other side and repeat the bendings the same way.

38 Take the position of Fig. A, left arm stretched. Turn to the left and bend to the right till the body comes in the position of Fig. F. Now turn to the right, at the same time bend to the left, making the body twist in the shortest possible way from position of Fig. F to position of Fig. C. Continue this twisting exercise, swinging as a pendulum from 5 to 50 times. Change wand to the other side and repeat the twisting and bending the same way.

39 Take the position of Fig. A, left arm stretched. Turn to the right and bend to the right till the body comes in the position of Fig. D. Now turn to the left and at the same time bend to the left, making the body twist in the shortest possible way from position of Fig. D to position of Fig. G. Continue this twisting exercise, swinging as a pendulum from 5 to 50 times. Change wand to the other side and repeat the twisting and bending in the same way.

40 By bringing into vigorous play the transversalis muscles of the abdomen, the above exercises will greatly strengthen these muscles—"Nature's corset." The viscera will become better supported, and the capacity of the chest will be increased. The raising of the chest will also draw the viscera upward, create a negative pressure, and thus hasten the emptying of the contents of the vena cava and thoracic duct.

41 WALKING EXERCISES

In this book we have included walking on the toes with knee bending upward only. The heels should be well lifted, and the chest should always be arched and head erect. The wand can be carried either in front of or behind the shoulders (3) (11) (Figs. 2, 3), or behind the back in front of the arms (15)

(Fig. 4). Walking on the toes, especially with knee bending upward (27), has a stimulating effect on the bowels, increasing peristalsis and strengthening the abdominal muscles. Walking on the toes is also very good after movements requiring muscle exertion, because of its quieting influence upon the heart action.

42 RUNNING EXERCISES

This exercise is always done on the toes, either forward, backward, or in place. In running, the head should be thrown a little backward, the chest raised, and the mouth closed. The breathing should be natural and deep. A distinguished Swedish writer has described walking as being "a constant falling forward, where the weight of the body is received by each leg alternately." This is still more true in running. The secret of running is, "waste no more energy than necessary; breathe deeply." This will enable one to run great distances without becoming fatigued. Running in place can be done with leg throwing, when the free leg is thrown either forward, sideways, or backward (28).

43 JUMPING EXERCISES

Both knees are bent as described under knee bending (26), and are then quickly extended. The landing should always be on the toes, with bent knees, the body erect and the head well up.

44 Jumping to Stride and Starting Position

During the first jump the leg separation takes place so that the landing is done in stride position (24). During the next jump the legs are returned to starting position, and so on.

45 Jumping with Leg Separation

The legs are thrown quickly and well stretched sideways and are again closed before the landing.

46 Jumping with Leg Striking

If the jumping is made from stride standing position, the legs can during the jump be closed together and again separated so that the landing is done in stride position.

47 Jumping on One Leg

The free leg is lifted forward with stretched knee and ankle. Compare 28.

LESSON I

1. Breathing Exercise

Raising on the toes (23) and wand lifting behind the shoulders (11). See position of wand in Fig. 2. Quietly, slowly, and powerfully, with raised chest and deep inspiration, 8-12 times.

2. Foot Placing Sideways with Wand Lifting behind the Shoulders

(A) Left foot sideways place (24), wand behind the shoulders (11).

(B) Foot replace, arms down (Fig. 1).

(C) Right foot sideways place, wand behind the shoulders.

(D) Position, 4-6 times with each foot.

3. Knee Bending Ex.

Leg and wand lifting forward, alternating with knee bending and wand lifting in front of the shoulders.

(A) Left leg and wand lifting forward (28 and 4) (Fig. 6).

(B) Position.

(C) Knee bending (26) (Fig. 2) and wand lifting in front of the shoulders (Fig. 3).

(D) Position. The same with right leg raising. Steady movements 3-6 times with each foot.

4. Trunk Bending Forward

Wand behind the shoulders (11) (Fig. 2). Bend forward slowly and thoroughly, breathing in. After each raising, a short pause with deep breathing. 3-6 times.

5. Trunk Twisting

Feet closed (22), wand behind the back in front of the elbows (15). For position of wand see Fig. 4. Trunk twisting alternately from left to right, slowly and thoroughly, 6-10 times.

6. Trunk Bending Sideways

Stride standing, wand in front of shoulders (Fig. 3) (4). Side bending alternately to left and right. Carefully, 4-6 times to each side.

7. Walking Ex. (41)

Wand in front of shoulders. Walk in place with knee bending upward (27) (Fig. 3) 30-50 times.

8. Breathing Ex.

Toe placing backward (25) (Fig. 9), with wand lifting behind the shoulders (Fig. 2), quietly and thoroughly, with deep inspirations, 4 times with each foot.

LESSON II

1. Breathing Ex.

Wand lifting behind the shoulders (Fig. 2) (11), with head bending backward. Deep and slow inspirations with wand raising, thorough expirations as wand is lowered, 8-12 times.

2. Foot Placing Ex.

Foot placing backward (24) with wand lifting forward-upward. See position of wand in Fig. 7. Alternately with left and right foot. Powerfully and vigorously 4-6 times with each foot.

3. Foot Placing Ex.

(A) Left foot placing sideways (24) with wand lifting left upward (7) (Fig. 5).

(A) Position.

(B) Right foot sideways, wand right upward.

(D) Position.

4. Balance Ex.

Knee bending upward (27) with wand lifting in front of the shoulders (Fig. 3). Hold the position 5-8 seconds. Bend each knee 2 or 3 times.

5. Trunk Bending Forward

Stride standing, as in Fig. 5, wand behind shoulders (Fig. 2) (11). Bend trunk forward. After each raising, a slight bending backward. 4-6 times.

6. Trunk Twisting

(A) Left foot placing sideways (24) with wand lifting forward (Fig. 6).

(B) Trunk twisting to left, wand obliquely to left.

(C) Twisting forward.

(D) Position (foot replace). Repeat to the right. A and B quickly. B and C slowly. 4-8 times to each side.

7. Running Ex. (42)

Wand in front of or behind the shoulders. Running in place with feet throwing backward. About one-half minute.

8. Breathing Ex.

Foot placing outward (24) with wand lifting behind the shoulder (Fig. 9) (13), and deep inspiration. When left foot is placed outward, the wand is lifted with left hand behind the left shoulder, the left arm bent, right arm straight, wand behind the back. When right foot is placed, the reverse is true. 6-10 times with each foot.

LESSON III

1. Breathing Ex.

Raising on the toes (23) with wand lifting forward upward. See position of wand in Fig. 7. Deep inspiration with wand lifting. Thoroughly, with heels together, 8-12 times.

2. Foot Placing with Wand Thrusting

Wand in front of shoulders (Fig. 3) (3).

(A) Left foot sideways place, wand thrusting forward.

(B) Arms bend, foot replace.

(C) Right foot sideways and wand thrusting forward.

(D) Arms bend, foot replace. Powerfully and with arched chest, even during the thrusting. 3-6 times with each foot.

3. Knee Bending Ex.

(A) Raising on the toes (23) with wand lifting forward upward.

(B) Knee bending (Fig. 2) (26), wand forward (Fig. 6) (4). Arms straight forward and horizontal.

(C) Knee stretching with wand lifting upward.

(D) Position. 6-10 times.

4. Trunk Bending Forward

(A) Left foot placing sideways (24) with wand lifting behind the shoulders (Fig. 2) (11).

(B) Trunk bending forward.

(C) Trunk raise.

(D) Position (foot replace). A and D quickly. B and C slowly. 4-6 times.

5. Trunk Twisting

(A) Left foot placing sideways (24) with wand lifting forward upward.

(B) Trunk twisting to left.

(C) Twist forward.

(D) Position. Repeat to the right. A and D quickly. B and C slowly. 3-6 times to each side.

6. Side Bending

Stride standing. Wand behind the shoulders (Fig. 2) (11). Trunk bending sideways. Alternately to left and right. Slowly and thoroughly. 5-8 times to each side.

7. Running Ex. (42)

Wand in front of or behind the shoulders (Figs. 2, 3). Run in place with leg throwing sideways. About 1/2 minute.

8. Breathing Ex.

Leg lifting backward (28) with wand lifting forward upward alternately with left and right leg (Fig. 7). Slowly and powerfully, with deep breathing. 3 or 4 times with each leg.

LESSON IV

1. Breathing Ex.

(A) Foot placing sideways (24) with wand lifting behind the shoulders (Fig. 2) (11).

(B) Trunk slightly backward bend.

(C) Trunk raise.

(D) Position. 5-8 times with each foot. Inhale on A and B. Exhale thoroughly on C and D.

2. Knee Bending Ex.

(A) Left foot placing sideways with wand lifting in front of shoulders.

(B) Knee bending with arm stretching forward.

(C) Knee stretching, wand in front of shoulders.

(D) Position. 4-6 times with each foot.

3. Balance Exercise

(A) Left leg backward (Fig. 7) (28), wand behind the shoulders (Fig. 2) (11).

(B) Arm stretching upward.

(C) Arm bending, wand behind the shoulders.

(D) Position. Repeat with right leg. Thoroughly 3-5 times with each leg.

4. Trunk Bending Forward

(A) Left foot placing sideways, wand in front of shoulders.

(B) Trunk bending forward, wand thrusting downward.

(C) Trunk raising, wand in front of shoulders.

(D) Position. Repeat with right foot placing. Sharply. 4-6 times with each foot.

5. Trunk Twisting (33) (34)

6. Trunk Bending Sideways

(A) Left foot placing sideways, wand left upward (Fig. 5).

(B) Trunk bending to right.

(C) Trunk raising.

(D) Position. Slowly and carefully 3-5 times. Then repeat with right foot placing, wand right-upward, and side bending to the left.

7. Jumping Ex.

Wand in front of or behind the shoulders. Jumping to stride and starting positions (44). 30-60 jumps.

8. Breathing Ex.

Feet closed, raise on toes with wand lifting forward upward. Quietly and thoroughly 5-8 times.

LESSON V

Breathing Ex.

Raising on the toes with wand lifting behind the shoulder. Alternately behind left and right shoulder (12). Slowly with powerful inspirations. 6-10 times. See note after Exercise 10, Lesson II.

2. Foot Placing with Wand Thrusting

(A) Left foot placing sideways with wand lifting in front of shoulders.

(B) Foot replace, wand thrusting forward.

(C) Right foot sideways, wand in front of shoulders.

(D) Position. Powerfully thrusting 6-10 times.

3. Knee Bending Ex.

(A) Raising on the toes with wand lifting forward upward.

(B) Knee bending, wand forward.

(C) Knee stretching, wand upward.

(D) Position. Keep the back straight. 6-10 times.

4. Balance Ex.

Leg lifting backward with wand lifting forward upward. Deep breathing. 2 or 3 times with each leg.

5. Trunk Bending Forward and Backward

Wand behind the shoulders, left foot placed forward. Trunk bending forward and slightly backward. 4-6 times.

6. Trunk Bending Sideways

Stride standing, wand in front of shoulders. Trunk bending alternately from left to right. Slowly and a little carefully. 4-6 times to each side.

7. Walking Ex.

Wand in front of or behind the shoulders. Walking in place with knee bending upward (on toes) (41) (Fig. 3). 50-100 steps.

8. Breathing Ex.

Stride standing. Raising on the toes with wand lifting forward upward. Slowly with deep inspirations. 6-10 times.

LESSON VI

1. Breathing Ex.

Heel raising with wand lifting.

(A) Raising on the toes with wand lifting forward.

(B) Wand lifting upward.

(C) Wand sinking forward.

(D) Position. Slowly and thoroughly. While going back to position the heels should not be lowered before movement D. 5-8 times. Inhale on A and B. Exhale thoroughly on C and D.

2. Knee Bending Ex.

(A) Left foot placing forward with wand lifting behind the shoulders.

(B) Heel raising and knee bending with arms stretching upward.

(C) Knee stretching and heel sinking. Wand behind the shoulders.

(D) Position. Repeat with right foot.

3. Balance Ex.

Leg lifting sideways with wand lifting. When the left leg is raised, the wand is raised with the right arm upward, the left hand to right shoulder, and opposite (7). See position of wand in Fig. 5. Hold 5-10 seconds, then reverse.

4. Trunk Bending Forward

(A) Feet closing with wand lifting in front of shoulders.

(B) Trunk bending forward with wand thrusting downward.

(C) Trunk raising with arm bending. Wand in front of shoulders.

(D) Position. Quite powerfully 4-8 times.

5. Trunk Twisting

(A) Feet closing with wand lifting forward.

(B) Twist to left, wand obliquely to left.

(C) Twist forward, wand forward.

(D) Position. Repeat to right. 3 or 4 times to each side.

6. Trunk Bending Sideways

Stride standing, wand behind the shoulders. Trunk bending alternately to left and right. 5-8 times to each side vigorously.

7. Running Ex.

Wand in front of or behind the shoulders. Run in place with leg throwing forward (42) about $\frac{1}{2}$ minute.

8. Breathing Ex.

(A) Left foot forward place, wand forward.

(B) Raise on the toes with wand lifting upward.

(C) Heels sink with wand sinking forward.

(D) Position. Repeat with right foot. 3-5 times with each foot.

LESSON VII

1. Breathing Ex.

Wand lifting behind the shoulders and slight trunk bending backward. Slowly with deep inspirations. 6-10 times.

2. Knee Bending Ex.

(A) Left foot placing forward with wand lifting forward.

(B) Raise on toes with wand lifting upward.

(C) Knees bend, wand behind the shoulders.

(D) Knees stretch, wand upward as in B.

(E) Heels sink, wand forward.

(F) Position. Repeat with right foot. Then foot placing sideways, and lastly backward, the wand moving as before. Distinct and powerful movements 1 or 2 times in each direction.

3. Wand Circling

Stride standing. The wand is grasped in the middle with right hand, the left hand is on the hip. Lift the wand forward upward, then lower it backward and downward. Slowly and thoroughly 6-8 times. Repeat with left. Breathe in while the wand is lifted upward.

4. Balance Ex.

Wand in front of shoulders. Leg throwing forward alternately left and right, in even time, 16-20 times.

5. Trunk Bending Forward

(A) Left foot placing forward with wand lifting forward upward.

(B) Trunk bending forward.

(C) Raising.

(D) Position.

Repeat with right foot. A and D quickly and powerfully. B and C slowly and thoroughly. 3 or 4 times with each foot.

6. Trunk Twisting

Stride standing, wand behind the shoulders. Trunk twisting with arm stretching.

(A) Twist the trunk to left while raising on toes and stretching the arms upward.

(B) Twist forward while sinking the heels, and bending the arms until the wand comes behind the shoulders.

(C) Repeat to right.

(D) Twist forward as in B.

7. Running Ex.

Wand in front of or behind the shoulders. Run in place with leg throwing backward (42), about $\frac{1}{2}$ minute.

8. Breathing Ex.

Toe placing backward with wand lifting forward upward. Alternate with left and right foot. Slowly with deep inspirations. 4 or 5 times with each foot.

LESSON VIII

1. Breathing Ex.

Toe placing back outward, wand behind one shoulder. Quietly with powerful inspirations. When the left foot is moved back outward, the wand is carried with the right hand behind the right shoulder, and reverse. 6-8 times with each foot.

2. Foot Placing with Wand Thrusting

(A) Left foot placing backward with wand lifting in front of shoulders.

(B) Foot replace with wand thrusting upward.

(C) Right foot placing backward, wand in front of shoulders.

(D) Position.

The thrusting upward should be done carefully, especially by inexperienced persons, otherwise the exercise is done quickly and distinctly. 5-8 times.

3. Balance Ex.

(A) Left leg and wand lifting forward.

(B) Leg and wand moving sideways, wand to opposite side from leg.

(C) Leg backward, wand behind the shoulders.

(D) Leg and wand sideways to position of B.

(E) Leg and wand forward.

(F) Position.

Repeat with right leg. Slowly and thoroughly, one or two series.

4. Trunk Bending Forward

(A) Feet closing with wand lifting forward upward.

(B) Trunk bending forward, keeping the arms as high as possible.

(C) Trunk raising.

(D) Position. 3-5 times.

5. Knee Bending Ex.

Leg lifting sideways, alternating with knee bending. Wand in front of shoulders.

(A) Left leg lifting sideways with arms stretching upward.

(B) Left leg sinking, wand in front of shoulders.

(C) Knee bending with wand stretching forward.

(D) Knee stretching, wand in front of shoulders.

Repeat with right leg raising. The whole exercise 3-5 times.

6. Trunk Bending Sideways

(A) Left foot placing sideways with wand lifting left upward (Fig. 5).

(B) Trunk bending to right.

(C) Raising.

(D) Position. Evenly and carefully. 3-5 times to each side.

7. Jumping Ex.

Wand in front of or behind the shoulders. Jump in place with leg separation (45). 15-20 jumps.

8. Breathing Ex.

Leg lifting backward, wand behind the shoulders and deep inspiration. 4-6 times with each leg.

LESSON IX

1. Breathing Ex.

Leg lifting with arm stretching.

(A) Left leg lifting backward, wand behind the shoulders.

(B) Arm stretching upward.

(C) Arm bending until wand comes behind the shoulders.

(D) Position.

Repeat with right leg. Thoroughly 4 or 5 times with each leg. Inhale on A and B, and exhale on C and D.

2. Foot Placing Sideways (Fig. 55) with Wand Moving Backward Downward

When the left foot is placed sideways, the left arm is bent as the wand is moved down behind the body. 4-6 times on each side.

3. Balance Ex.

Wand in right hand, left hand on hip.

(A) Left leg and wand lifting forward.

(B) Leg and wand moving sideways, wand to opposite side.

(C) Leg backward, wand upward.

(D) Leg and wand sideways to position of B.

(E) Leg and wand forward to position of A.

(F) Position.

Repeat, then change wand to left hand and take the exercise with right leg lifting. Slowly and thoroughly. Series, 1-3 times.

4. Trunk Bending Forward and Backward

Stride standing, wand upward. Bend backward carefully, placing the wand behind the shoulders. 4-6 times.

5. Trunk Twisting

(A) Left foot sideways, wand horizontal to the same side.

(B) Trunk and head twisting to the left.

(C) Twist forward.

(D) Position. Repeat to the right. Thoroughly, 3 or 4 times to each side.

6. Trunk Bending Sideways

(A) Right toe placing sideways, wand left upward. See position of wand in Fig. 5.

(B) Trunk bending to the right.

(C) Raising.

(D) Position.

Repeat with left toe placing, wand right upward, and bending to the left. 3 or 4 times to each side. Carefully, yet thoroughly.

7. Walking Ex.

Wand behind the back in front of the arms (Fig. 4). Walk in place with knee bending upward (on toes) (41). About 1½ minute.

8. Breathing Ex.

Feet closed. Raise on toes, with wand lifting behind the shoulders. Full and deep inspirations. The legs are held well together and stretched. 6-10 times.

LESSON X

1. Breathing Ex.

Stride standing, wand raising forward, upward, with slight trunk bending backward. Carefully. The breathing should be deep. 8-12 times.

2. Knee Bending Ex.

(A) Raise on toes with wand lifting forward.

(B) Knees bend with wand lifting upward.

(C) Knees stretch with wand forward as in A.

(D) Position. 4-8 times.

3. Wand Twisting

Stride standing (Fig. 5). The wand, grasped in the middle with the right hand, is held forward, left hand on the hip. The exercise can be done until tired, then change hands. During the exercise the wand can be held sideways or upward (21).

4. Balance Ex.

(A) Left knee and wand lifting forward.

(B) Knee moving sideways.

(C) Knee moving forward.

(D) Position.

Repeat with right knee. Slowly and steadily, the moving sideways carefully. 3 or 4 times with each leg.

5. Trunk Bending Forward

(A) Left foot placing forward, wand upward.

(B) Trunk bending forward.

(C) Trunk raise.

(D) Position.

Repeat with right foot placing. During the bending forward, the legs, especially the front leg, should be well stretched. 2 or 3 times with each foot.

6. Trunk Bending Sideways

(A) Right toe placing sideways, wand left upward. For position of wand see Fig. 5.

(B) Bend to the right.

(C) Raise.

(D) Position.

Repeat with left toe placing sideways, wand right upward and bending to the left. 3 or 4 times to each side.

7. Running Ex.

Wand behind the back in front of the arms as in Fig. 4. Run in place with leg throwing sideways (42). About $\frac{1}{2}$ minute.

8. Breathing Ex.

(A) Left leg lifting backward with wand lifting forward upward.

(B) Arm bending till the wand comes behind the shoulders.

(C) Arm stretching upward.

(D) Position.

Repeat with right leg lifting. Breathe in during A and B. Breathe out during C and D. 3 or 4 times with each leg.

LESSON XI

1. Breathing Ex.

(A) Left toe placing backward, with wand lifting behind the shoulders.

(B) Arm stretching upward.

(C) Arm bending, wand behind the shoulders.

(D) Position. Repeat with right toe placing 2-4 times with each foot. Breathe in on A and B. Breathe out on C and D.

2. Foot Placing Forward with Arms Stretching Upward

Wand in front of shoulders. Powerfully, yet with some care. 8-10 times with each foot.

3. Balance Ex.

Leg and arm stretching.

(A) Left knee bending upward, with wand in front of shoulders.

(B) Leg and arm stretching forward.

(C) Leg and arm bending to position of A.

(D) Position.

Repeat with right leg. Then bending and stretching sideways, wand to opposite side and finally leg backward, wand upward. Powerfully, and holding a good position. Series, 1 or 2 times.

4. Leg Throwing Backward with Wand Thrusting Forward

Wand in front of shoulders. Alternately left and right leg. Vigorously 10-16 times with each leg.

4. Trunk Bending Backward and Forward

(A) Left foot placing forward, wand behind shoulders.

(B) Trunk bending forward.

(C) Raising.

(D) Bending backward carefully.

(E) Raising.

(F) Position.

The same with right foot placing. 3-5 times each foot.

5. Trunk and Head Twisting

(A) Left foot placing sideways, wand left sideways.

(B) Trunk and head twisting to the left.

(C) Twisting forward.

(D) Position.

The same to the right. A and D are taken quickly, B and C slowly. 3 or 4 times to each side.

6. Trunk Bending Sideways

Stride standing. Wand upward. Trunk bending alternately to right and left. Carefully, 3 or 4 times to each side.

7. Running Ex.

Wand behind the back in front of the arms (Fig. 4). Run in place with leg throwing forward about $\frac{1}{2}$ minute (42).

8. Breathing Ex.

Toe placing backward, wand backward downward. When the left foot is placed backward, the right arm is bent as the wand is moved down behind the body. 4-6 times each foot.

LESSON XII

1. Breathing Ex.

Feet closed (22). Raise on toes with wand lifting forward upward. Legs well stretched and close together. Head high, chest lifted. 8-10 times.

2. Knee Bending Ex.

(A) Left foot placing forward, wand in front of shoulders.

(B) Arm stretching forward with knee bending, and raising on toes.

(C) Arm bending, with knee stretching and heel sinking as in A.

(D) Position. The same with the right foot. The second time the exercise is taken, the arms can be stretched upward. Then the exercise can be taken with foot placing outward, sideways, backward-outward, and backward (Fig. 11) (2). A snappy movement. Series, 1 or 2 times.

3. Balance Ex.

Leg and arm stretching exercise.

(A) Left leg and wand lifting forward.

(B) Left knee bending, wand in front of shoulders.

(C) Stretching forward.

(D) Position.

Repeat with right leg. Then lifting and stretching sideways, wand on opposite side, and finally leg backward, wand upward. In A and D the arms and legs should be as straight as possible. Series, 1 or 2 times.

4. Trunk Bending Forward and Downward

(A) Left leg lifting backward and wand lifting forward upward (Fig. 7).

(B) Foot replace with trunk bending forward and downward.

(C) Trunk raise with leg lifting backward and wand lifting upward as in A.

(D) Position.

The same with right leg lifting. 2 or 3 times with each leg.

5. Trunk Twisting

Stride standing, wand behind the shoulders.

(A) With raising on toes and arms stretching upward, twist to the left.

(B) Bring the wand to the shoulders and lower the heels as the body turns forward. Repeat to the right. 2-4 times each side. Powerfully and a little slowly.

6. Trunk Bending Sideways

Left foot placing sideways, wand left upward, and side bending to the right, all in one count. Then change. 2-4 times each side.

7. Jumping Ex.

Wand in front of or behind the shoulders. Jump in place with leg striking (46). The landing is done in stride standing. 8-12 times with short rest between.

8. Breathing Ex.

Toe placing backward inward (25), wand backward downward (14). When the left foot is moved backward, the left arm is bent as the wand moves behind the body and opposite. Deep inspirations. 3 or 4 times to each side.

LESSON XIII

1. Breathing Ex.

Left leg sideways fallout (31) (Fig. 4), with wand lifting, left arm upward, right arm sideways. For position of wand see Fig. 8. Repeat with right leg, right arm upward, left arm sideways. Deep inspiration with the arm raising. 3-5 times each side.

2. Knee Bending Ex.

(A) Left leg lifting backward with wand lifting forward upward (Fig. 7).

(B) Position.

(C) Knee bending with wand lifting forward.

(D) Position. Repeat with right leg lifting and knee bending. 2-4 times with each leg.

3. Balance Ex.

Wand in the right hand. Left hand on hip (16).

(A) Left knee bending upward (Fig. 3), with right arm bent till elbow comes as close to the body as possible.

(B) Leg and arm stretching forward.

(C) Leg and arm bending as in position of A.

(D) Position.

Repeating, stretch arm and leg sideways, and lastly stretch leg backward and arm forward. Then change. Powerfully and thoroughly. Series, 1 or 2 times.

4. Trunk Bending Forward

(A) Left foot placing sideways with wand lifting in front of shoulders.

(B) Trunk bending forward with wand thrusting downward.

(C) Trunk raising, with wand lifting in front of shoulders.

(D) Position.

Quietly and powerfully, the thrusting a little carefully. 5-8 times with each foot.

5. Leg Throwing Ex.

Wand behind the back in front of the arms (compare Fig. 4). Leg throwing sideways alternately with left and right leg. 15-20 times with each leg.

6. Trunk Twisting Ex.

Stride standing. Trunk twisting alternately to left and right. During the twisting the wand is lifted forward upward and the body is bent slightly backward. Very slowly and carefully. 3-5 times to each side.

7. Running Ex.

Wand behind the back in front of the arms (15) (Fig. 4). Run in place with leg throwing backward (42). About 1/2 minute.

8. Breathing Ex.

(A) Left leg forward fallout, with wand lifting forward upward.

(B) Position.

(C) Right leg the same.

(D) Position.

Deep inspirations. 4-6 times with each leg.

LESSON XIV

1. Breathing Ex.

Leg lifting and moving.

(A) Left leg lifting backward, wand behind the shoulders.

(B) Leg moving sideways.

(C) Leg backward.

(D) Position.

Repeat with right leg. 2-4 times with each. Breathe in on A and B. Breathe out on C and D.

2. Foot Placing Backward with Wand Thrusting Forward

Wand in front of shoulders. Vigorously 6-10 times with each foot.

3. Fallout Position Alternating with Knee Bending.

(A) Left leg forward fallout (Fig. 4), with wand lifting behind the shoulders (Fig. 2).

(B) Position.

(C) Knee bending (Fig. 2) with wand lifting forward upward (Fig. 7).

(D) Position.

Repeat with right leg forward fallout, and knee bending the same as before. 3 or 4 times with each leg.

4. Leg Throwing Ex.

Wand behind the shoulders. Leg throwing sideways, alternately with left and right leg. Both legs should be kept as straight as possible, and the chest carried high. 16-20 times with each leg.

5. Trunk Bending Forward and Backward

(A) Jump to stride position with wand lifting forward upward.

(B) Bend forward till hands touch the floor.

(C) Raise.

(D) Wand behind the shoulders and slight bending backward, arching the chest.

(E) Raise.

(F) Jump to position.

3-5 times.

6. Trunk Twisting

(A) Feet close with wand lifting forward upward.

(B) Twist to left.

(C) Twist forward.

(D) Position. Repeat to right.

A and D quickly and vigorously. B and C slowly and thoroughly. 2-4 times to each side.

7. Running Ex.

Wand in front of or behind the shoulders. Run in place with knee throwing upward (42). 20-40 steps.

8. Breathing Ex.

Feet close, wand behind the shoulders. Raising on toes with arm stretching upward. Thoroughly and slowly. 8-12 times.

LESSON XV

1. Breathing Ex.

Leg lifting backward with wand lifting behind shoulders. Alternately left and right leg. Chest arched and head well up. Slowly, with deep inspirations. 3-5 times with each leg.

2. Fallout Positions

(A) Left leg forward fallout (31) (Fig. 4) with wand lifting forward upward.

(B) Position.

(C) Left leg sideways fallout, wand left upward (Fig. 5).

(D) Position.

Repeat with right leg. 3 or 4 times with each leg.

3. Balance Ex.

The wand in right hand, left hand on hip (16).

(A) Left leg lifting backward, with wand lifting forward.

(B) Leg and wand moving sideways. Wand to opposite side.

(C) Leg forward, wand upward.

(D) Move leg and wand sideways again as in position of B.

(E) Move leg backward and wand forward as in position of A, and repeat once more. Then change wand to left hand and do the exercise with right leg. Take care to have a good position and to do the exercises slowly and thoroughly.

4. Trunk Bending Forward and Backward

(A) Left foot placing forward with wand lifting behind the shoulders.

(B) Trunk forward bend.

(C) Raise.

(D) Trunk slightly backward bend. Carefully.

(E) Raise.

(F) Position.

Repeat with the right foot.

5. Trunk Bending Sideways (35)

6. Heel Raising Ex.

Wand behind the shoulders. Raise on toes as high as possible 20-30 times.

7. Jumping Ex.

Wand in front of or behind the shoulders. Jumping on one leg, the free leg is held forward. 10 jumps on each leg at a time, making about 40-60 jumps in all (47).

8. Breathing Ex.

(A) Left leg forward fallout (Fig. 4) (31), with wand moving back downward (14).

(B) Position.

(C) Right leg the same.

(D) Position. Deep inspiration with the wand moving back downward, 5-8 times with each foot.

LESSON XVI

1. Breathing Ex.

Fallout standing (31) (Fig. 4) forward inward (2) (Fig. 11), wand behind one shoulder (13) (Fig. 9). When left leg is moved, the wand is carried with right hand behind right shoulder; and reverse. 3-5 times to each side.

2. Fallout Position and Arm Stretching

(A) With wand lifting in front of shoulders. Left leg forward fallout (31) (Fig. 4).

(B) Arm stretching upward.

(C) Arms bend until wand comes in front of shoulders.

(D) Position.

Repeat with right leg 5-8 times.

3. Leg Swinging Ex. (30)

Wand in front of shoulders. Leg swinging forward and backward in six counts. In the sixth count the foot is replaced, and immediately the other leg begins. Quietly, but powerfully and steadily. 4-6 times with each leg.

4. Trunk Bending Forward

(A) Wand behind the shoulders and left leg forward fallout.

(B) Trunk forward bend.

(C) Trunk raise.

(D) Position.

Repeat with right leg. 2-4 times.

5. Trunk Bending Sideways

Right toe placing sideways, wand left upward and side bending to right, all in one count. Then reverse. Carefully, but still thoroughly. Deep inspiration with bending. 3-5 times.

6. Balance Ex.

(A) Left leg lifting backward, wand behind the shoulders.

(B) Leg moving sideways, wand upward.

(C) Leg backward, wand behind shoulders as in A.

(D) Position.

Repeat with right leg. 2-4 times.

7. Running Ex.

Wand in front of the shoulders. Run in place, with leg throwing forward, sideways, and backward (42). About 1 minute.

8. Breathing Ex.

Stride standing. Wand lifting forward upward and slight trunk bending backward. Carefully, but with deep inspiration. 6-10 times.

LESSON XVII

1. Breathing Ex.

Left leg forward-inward fallout (2) (31) (Figs. 11, 4), with wand moving back downward. When left leg is moved forward-inward, the right arm is bent as the wand is moved down behind the body. Deep inspiration. 3 or 4 times with each leg.

2. Fallout Position, Alternating with Knee Bending

(A) Left leg back outward fallout (2) (31) (Figs. 11, 4) and wand lifting left upward (7). See position of wand in Fig. 5.

(B) Position.

(C) Knees bend, with wand lifting forward.

(D) Knees stretch and arms sink as in position.

Repeat with right leg. Series, 2-4 times with each leg.

3. Balance Ex.

(A) Left leg and wand lifting forward (28) (4) (Fig. 6). Right knee slightly bent.

(B) Leg moving sideways. Wand lifting upward.

(C) Leg backward, wand behind the shoulders.

(D) Move leg sideways and wand upward as in B.

(E) Leg and wand forward as in A.

(F) Position. During the whole exercise the right knee can be kept bent. Quietly and steadily. 1 or 2 times to each side.

4. Knee Bending Ex.

(A) Left foot placing (24) forward-

inward (2) (Fig. 11) with wand lifting forward (4) (Fig. 6).

(B) Raise on toes with wand lifting upward.

(C) Knees bend, wand behind the shoulders.

(D) Knees stretch, and wand upward as in B.

(E) Heels sink and wand forward as in A.

(F) Position.

Repeat with right foot. Then continue the same way with foot placing in the directions forward, outward, sideways, back-outward, backward, and back-inward (2) (Fig. 25). Each series 1 or 2 times.

5. Trunk Bending Forward and Backward

(A) Left leg forward fallout (31) (Fig. 4) with wand lifting forward upward.

(B) Trunk forward bend.

(C) Trunk raise.

(D) Trunk slightly backward bend, wand behind the shoulders.

(E) Trunk raise.

(F) Position.

Repeat with right leg fallout. 2 or 3 times.

6. Trunk Twisting and Bending (36)

7. Jumping Ex.

Wand behind the back, in front of the arms. Jump to stride and starting position (43) (44). 40-80 jumps.

8. Breathing Ex.

Toe placing backward with wand lifting forward upward. Breathe deeply. 4-6 times with each foot.

LESSON XVIII

1. Breathing Ex.

(A) Left toe placing backward, with wand lifting behind the shoulders.

(B) Arm stretching upward.

(C) Arm bending, wand behind the shoulders.

(D) Position.

Repeat with right toe placing. 3-5 times. Breathe in on A and B. Breathe out on C and D.

2. Leg Throwing Ex.

Wand in front of shoulders. Leg throwing sideways with wand thrusting forward. Alternately with left and right leg. Powerfully, but a little carefully. 8-12 times to each side.

3. Fallout Position with Arm Stretching

(A) Wand behind the shoulders, and left leg outward fallout.

(B) Raise on toes, wand upward.

(C) Heels sink, wand behind the shoulders as in A.

(D) Position.

Repeat with left leg. Slowly and powerfully. 4-6 times.

4. Trunk Bending Forward and Backward

(A) With wand lifting forward upward, left leg forward fallout.

(B) Trunk forward bend.

(C) Trunk raise.

(D) Trunk slightly backward bend, wand behind the shoulders.

(E) Raise.

(F) Position.

Repeat with right leg fallout. 2 or 3 times.

5. Knee Bending Ex.

(A) Raising on toes with wand lifting upward.

(B) Knee bending, wand forward.

(C) Knee stretching with wand lifting upward.

(D) Position. 10-20 times.

6. Trunk Twisting

Stride standing, wand behind the shoulders. Raising on toes with trunk twisting and wand moving back downward (14). Quietly and slowly with raised chest and deep breathing. 3 or 4 times.

7. Jumping Ex.

Wand behind the back in front of the arms. Jumping in place on one leg, the other leg is held forward (47). 10 jumps on each leg at a time, making about 40-80 jumps in all.

8. Breathing Ex.

Toe placing (25) (Fig. 9) back outward (2) (Fig. 11), with wand lifting forward upward. Quietly, with powerful inspirations. 3-5 times with each foot.

LESSON XIX

1. Breathing Ex.

(A) Left leg sideways fallout (31) (Fig. 4), wand left arm upward, right arm sideways (8) (Fig. 8).

(B) Position.

(C) Right leg sideways fallout, wand right arm upward, left arm sideways.

(D) Position. Deep inspirations. 4-6 times to each side.

2. Changing between Fallout Positions

(A) Left leg forward inward (2) (Fig. 25) fallout (31) (Fig. 4), wand right upward. See position of wand in Fig. 5.

(B) Left leg backward outward fallout. Wand left upward.

(C) Left leg forward inward fallout, wand right upward.

(D) Position.

The change from A to B and from B to C is done directly without taking the fundamental position. Repeat with right leg. 3-5 times.

3. Balance Ex.

The wand in the right hand, left hand on hip.

(A) Left leg and wand lifting forward, right knee slightly bent.

(B) Leg and wand sideways.

(C) Leg backward, wand upward.

(D) Leg and wand sideways as in B.

(E) Leg and wand forward as in A.

(F) Position. Series, 1-3 times.

4. Trunk Bending Forward

(A) Left leg backward outward fallout, wand upward.

(B) Bend forward.

(C) Raise.

(D) Position.

Repeat with right leg. The movement is a strong one, and ought, therefore, to be taken carefully. 2-4 times.

5. Trunk Twisting

Feet closed, wand lifted upward. Trunk twisting and slight bending backward. Alternately to left and right, a little carefully. The wand can also be lifted behind the shoulders. 3-5 times to each side.

6. Trunk Bending Sideways

Stride standing.

(A) Left knee bend, wand left upward, and side bending to right.

(B) Trunk raise, knee stretch, and wand sink to starting position.

(C) Repeat with right knee bend, wand right upward, and side bending to left.

(D) Position. 3-5 times to each side.

7. Running Ex.

Wand in front of or behind the shoulders. Run in place with leg throwing forward, sideways, and backward (42). About 1 minute.

8. Breathing Ex.

(A) Left leg forward fallout, wand behind the shoulders.

(B) Arms stretching upward.

(C) Wand behind the shoulders.

(D) Position.

Repeat with right leg. Stretch the arms upward thoroughly. 3-5 times with each leg. Breathe in on A and B. Breathe out on C and D.

LESSON XX

1. Breathing Ex.

(A) Left leg lifting backward, wand behind the shoulders.

(B) Arm stretching upward.

(C) Wand behind the shoulders.

(D) Position. Repeat with right leg. Inhale on A and B. Exhale on C and D. 3-5 times each leg.

2. Fallout Positions

(A) Left leg outward fallout with wand lifting upward. See position of wand in Fig. 5.

(B) Position.

(C) Right backward outward fallout, wand right upward.

(D) Position. Repeat with right leg outward, left leg back outward. The series, 3 or 4 times.

3. Balance Ex.

(A) Left leg and wand lifting forward. Right knee bend.

(B) Leg sideways, wand upward.

(C) Leg backward, wand behind the shoulders.

(D) Leg sideways, wand upward as in B.

(E) Leg and wand forward as in A.

(F) Position. During the whole exercise the right knee can be kept bent. Quietly and steadily. 1 or 2 times.

4. Trunk Bending Forward and Backward

Stride standing, wand upward. Trunk bending forward and slightly backward. Carefully. If not used to the backward bending, put the wand behind the shoulders. 4-6 times.

5. Heel Raising Ex.

Wand behind the shoulders. Raise on toes 20-30 times, as high as possible.

6. Trunk Twisting and Bending (37)

7. Running Ex.

Wand behind the back in front of the arms. Run in place with foot throwing backward (42). About 1 minute.

8. Breathing Ex.

Toe placing sideways. Wand backward downward. When left foot is placed sideways, the right arm is bent as the wand moves behind the body and opposite.

LESSON XXI

1. Breathing Ex.

Starting position, wand behind the shoulders.

(A) Knees bend, wand forward.

(B) Knees stretch, wand behind the shoulders.

Repeat 12-20 times. Breathe in on A and out on B.

2. Leg Throwing Ex.

Wand in front of the shoulders. Leg throwing backward carefully with wand thrusting forward. Alternate with right and left leg. 6-10 times with each leg.

3. Balance Ex.

(A) Left leg lifting backward with wand lifting forward.

(B) Leg sideways, wand upward.

(C) Leg forward, wand behind the shoulders.

(D) Leg sideways, wand upward as in B.

(E) Leg backward, wand forward as in A.

(F) Position. Repeat with right leg. 2 or 3 times. Chest high.

4. Changing between Fallout Position

(A) Left leg forward fallout with wand lifting forward upward.

(B) Left leg sideways fallout with

wand sinking forward (4); shoulder high, arms straight.

(C) Left leg forward fallout, wand upward as in A.

(D) Position.

The same with right leg. 2-4 times with each leg.

5. Trunk Twisting (38)

6. Trunk Bending Sideways

Left leg outward fallout, wand behind the shoulders. Slightly twisting to right. Side bending carefully to left. 3-5 times. Then reverse.

7. Jumping Ex.

Wand behind the back in front of the arms (15). Jump in place with leg separation (45). 15-20 times.

8. Breathing Ex.

(A) Left foot placing outward, wand behind the shoulders.

(B) Raise on toes with arm stretching upward.

(C) Heels sink, wand behind the shoulders.

(D) Position.

Repeat with right foot. Quietly and thoroughly. 3 or 4 times with each foot. Inhale with movements A and B. Exhale with B and C.

LESSON XXII

1. Breathing Ex.

Feet closed. Raise on toes with wand lifting, forward upward. Take a deep inspiration with the wand lifting. 8-12 times.

2. Changing between Fallout Positions

(A) Left leg backward outward fallout (13) (Fig. 4), wand behind the left shoulder (13) (Fig. 9).

(B) Left leg forward inward fallout, wand behind the right shoulder.

(C) Left leg backward outward fallout, wand behind the left shoulder as in A.

(D) Position. Then reverse. During the direct change from A to B and from B to C, the wand is moved evenly in as large an arc as possible. 2-4 times with each leg.

3. Balance Ex.

The wand in the right hand, left hand on hip.

(A) Left leg lifting backward with wand lifting forward.

(B) Leg and wand sideways.

(C) Leg forward, wand back-outward.

(D) Leg and wand sideways as in B.

(E) Leg backward, wand forward as in A.

(F) Position. Then change. 2 or 3 times.

4. Knee Bending Ex.

Knee bending with wand lifting forward. 10-20 times.

5. Trunk Twisting

Left leg outward fallout, wand behind the shoulders and trunk twisting to left. Trunk bending forward and backward. The bendings will then be done in the directions forward-outward and backward-outward. Repeat with right leg. In each position 3 or 4 bendings can be taken forward and the same number backward.

6. Trunk Bending Sideways

Stride standing, wand upward. Side bending alternately from left to right. Carefully. If the bending is very uncomfortable, put the wand behind the shoulders. 3 or 4 times to each side.

7. Running Ex.

Wand behind the back in front of the arms (15) (Fig. 4). Run in place with leg throwing forward, sideways, and backward (42). About 1 minute.

8. Breathing Ex.

(A) Left leg forward fallout. Wand behind the shoulders.

(B) Raise on toes, arms stretching upward.

(C) Heels sink, wand in front of shoulders as in A.

(D) Position.

Repeat with right leg. Breathe in during the exercise of A and B. Breathe out during C and D.

LESSON XXIII

1. Breathing Ex.

Left leg forward fallout, with wand moving back downward. When left leg is moved forward, the left arm is bent as the wand is carried behind the body. When the right leg is moved, the right arm is bent. 4-6 times with each leg.

2. Leg Swinging Ex.

Wand in front of shoulders. Leg swinging sideways and inward in six counts. On the sixth count the foot is replaced, then the other foot begins. 3-5 times.

3. Balance Ex.

Wand in right hand. Left hand on hip.

(A) Left leg and wand lifting forward. Right knee slightly bend.

(B) Leg and wand sideways.

(C) Leg backward, wand upward.

(D) Wand and leg sideways as in B.

(E) Wand and leg forward as in A.

(F) Position, and immediately repeat the exercise once more. Then change. During the whole exercise the standing leg can be slightly bent.

4. Trunk Bending Forward and Backward

(A) Left leg forward fallout with wand lifting forward-upward.

(B) Trunk forward bend.

(C) Trunk raise.

(D) Trunk slightly backward bend, wand behind the shoulders.

(E) Trunk raise.

(F) Position.

Repeat with right leg, 3-6 times.

5. Trunk Twisting

(A) Left leg forward-inward fallout, wand behind the shoulders, left arm straight and shoulder high.

(B) Twist to left.

(C) Twist forward.

(D) Position.

Repeat with right leg, forward-inward fallout, right arm straight.

6. Trunk Bending Sideways

Feet closed, left foot forward, and wand behind the shoulders. Alternate side bending, 3 or 4 times to each side. Change feet and repeat.

7. Running Ex.

Wand in front of or behind the shoulders. Run in place with knee throwing upward (42). 30-50 steps.

8. Breathing Ex.

Raise on toes with wand lifting forward upward. Quietly and evenly with deep inspiration. 6-10 times.

LESSON XXIV

1. Breathing Ex.

Wand behind the shoulders. Toe placing backward with arm stretching upward. Thoroughly 6-8 times with each foot. Inhale as the arms are stretched upward. Exhale as the arms bend.

2. Changing between Fallout Positions

(A) Left leg outward fallout with wand moving back downward.

(B) Position.

(C) Right leg back-outward fallout. Wand right upward.

(D) Position.

When left leg is moved outward, the left arm is bent as wand is moved behind the body. 2-4 times.

3. Wand Twisting (21)

The wand in the right hand, left hand on the hip. These wand twisting exercises can be done until tired, then change hands. During the exercise the wand can be held forward sideways or upward.

4. Leg Throwing Ex.

Wand behind the back in front of the elbows. Leg throwing in five directions (forward-backward) (2) (Fig. 25), 3-5 series. The foot, in the whole exercise, should not sink to the floor. Repeat with right leg.

5. Trunk Bending Forward and Backward

(A) Jump to stride position with wand lifting forward-upward.

(B) Bend forward and downward till the hands touch the floor.

(C) Raise.

(D) Wand behind the shoulders and slight bending backward, arching the chest.

(E) Raise.

(F) Jump to position.

The exercise 3-5 times.

6. Trunk Bending Sideways

Left toe placing sideways, wand right upward. For position of wand see Fig. 5. Side bending to left. All in one count. Then reverse, quietly and thoroughly. 2-4 times to each side.

7. Jumping Ex.

Wand behind the back, in front of the arms. Jump in place with leg striking (46). 20-40 steps.

8. Breathing Ex.

(A) Raising on the toes with wand lifting behind the shoulders.

(B) Knee bending, wand forward.

(C) Knee stretching with wand lifting behind the shoulders.

(D) Knee bending, wand forward.

Continue 10-20 times. Breathe in with the knee stretching and wand lifting. Breathe out with the knee bending and wand sinking.

LESSON XXV

1. Breathing Ex.

(A) Left toe placing back outward, wand behind the right shoulder and head twisting to right.

(B) Position. 4-6 times to each side. Compare Ex. 1, Lesson VIII.

2. Changing between Fallout Positions

(A) Left leg back-outward fallout. Wand left upward right outward (9). For position of wand see Fig. 8.

(B) Left leg forward-inward fallout. Wand right upward left back-outward.

(C) Left leg back-outward fallout, wand left upward right outward as in A.

(D) Position.

The foot is moved directly, and the wand is carried in as large an arc as possible. Stretched arms all the time. Alternately, 3 or 4 times with each leg.

3. Balance Ex.

(A) Left leg lifting backward with wand lifting forward-upward.

(B) Leg moving sideways. Wand right upward.

(C) Leg backward, wand upward as in A.

(D) Position.

Repeat with right leg lifting. 2 or 3 times.

4. Trunk Bending Backward and Forward

(A) Jump to stride standing position with wand lifting forward-upward.

(B) Trunk slightly backward bend, with wand behind the shoulders.

(C) Trunk raise, wand upward.

(D) Trunk forward and downward bend.

(E) Trunk raise.

(F) Jump to position. The series, 5 or 6 times.

5. Trunk Twisting (39)

6. Trunk Bending Sideways

Wand behind the shoulders, taking large stride standing position. The distance between the feet should be at least three times the length of the feet. Bend the left knee, then bend to the left as far as possible, without twisting the body forward. Raise the body and stretch the left knee. Repeat to right and continue this bending alternately from left to right 4-6 times to each side. The wand can also be held with the arms straight over the head, as in Fig. 7.

7. Running Ex.

Wand behind the back in front of the arms. Run in place with knee throwing upward (42). 30-50 steps.

8. Breathing Ex.

(A) Raising on the toes with wand lifting forward-upward.

(B) Knee bending, wand forward.

(C) Knee stretching with wand lifting upward.

(D) Knee bending, wand forward. Continue 10-20 times. Breathe in with the wand lifting. Breathe out with the wand sinking.



Appendix



Brief History of Curative Gymnastics

In the long run of life it is not so much its intensity as its beauty that must prevail; not quantity but quality. There is no inherent reason why a noble art should not bring these mighty elements and essentials into just and harmonic association and proportion. It is for this adjustment that the noblest spirits strive, and the saddened and distorted ages wait and labor on to its attainment.—*John Ward Stimson* (“*The Gate Beautiful*”).

APPENDIX

BRIEF HISTORY OF CURATIVE GYMNASTICS

THE ancient Greeks seem to be the first to give us definite records concerning the practice of the art of curative gymnastics. It is true that the Chinese and Hindus were using special exercises for curative purposes long before the Greeks, but their records are not definite enough to be of any particular value. Neither are those of the ancient Egyptians, though they probably knew more about this art than their records show. They surely inspired the Greeks in this, as in many other lines. The Greeks were the first, however, so far as we know, who elaborated extensively on this noble art. They considered gymnastics to be absolutely necessary for the preservation of health. It was for this reason that the gymnasia were dedicated to Apollo, the god of physicians.

Plato considers Herodicus to have been among the inventors of curative gymnastics. Herodicus lived at Athens a short time before the Peloponnesian war. Plato says that he was not only a sophist, but also a physician and a master of the gymnasium. He was troubled with very weak health, and tried if gymnastic exercises would not help to improve it; and having perfectly succeeded in his own case, he imparted his methods to others.

Several other Greek writers give us quite extensive accounts of the good effects of particular exercises, and they were practiced so universally by all classes, that it can not be supposed but they must have been able to produce great and good effects.

From an attentive perusal of what we find on this subject in classical literature, the reader can hardly fail to be convinced that the great majority of the ancient Greeks esteemed gymnastics far more highly than do the average people at the present day. The Greeks had an ideal, a more definite ideal than we in our age seem able to grasp. Greece stood for consummate refinement of physical and mental beauty. They at-

tained it; after all, that is their chief glory. But the exercise of sympathy, of compassion, of mercy, save as it ministered to self-gratification to indulge in it, their ideal of life did not include. Self-perfection at any cost to others was their one aim.

The dazzling brilliance of the intellectual achievements of the Greeks, and the elegant refinement of their personal perfection can not, however, help compel admiration from every earnest seeker for truth, in spite of their deficiencies in other more emotional and religious lines. It is often not quite clear to even the most advanced of us how immensely far removed the ideal of life of the twentieth century is from the ideal of the Greeks. Still the products of these wonderfully gifted mortals have a charm all their own in expressing freedom, joyousness and poise. Their cold marble seems almost to move with living breath. Pictures of their most beautiful statues ought to be hung in every school, club and gymnasium, and as far as possible, life-sized casts should be set up as well, to accustom the eye to conceive the perfect form and to value the beauty of our own bodies, that in this way we may get ideals which we may strive to imitate.

Mr. Galton, whose anthropological investigations and statistical and other measurements of human faculties, physical and mental, under a wide range of circumstances, give him a peculiar right to be heard, is of opinion that the ablest race of whom history bears record is unquestionably the ancient Greeks. He considers that our average intellectual as well as physical development is far below that of the Greeks as a people. He says: "It follows from all this, that the average ability of the Athenian race is, on the lowest possible estimate, very nearly two grades higher than our own; that is, about as much as our race is above that of the African Negro."

In ancient Greece, art and physical exercise stood in the closest relationship to one another. Art would really not



APOLLO BELVIDERE

(See page 103.)

have existed without gymnastic exercises. The ideals of human physical perfection were then created.

In view of the extraordinary influence of physical exercises on the preservation of the strength of the race, our present generation ought to take them as seriously and enthusiastically as the ancient Greeks. Yes, even more so, as the need for physical regeneration is far greater now than in their times. Everybody ought to feel it his duty to do all that is possible to perfect the health, strength, efficiency, and beauty of his body. We ought to strive to obtain so great a measure of vitality and self-control, of physical, mental and moral health and efficiency, that our children may be improved editions of their parents. Whoever intelligently raises such children will have the honor of having rendered the greatest and noblest service to the state; namely, that of contributing to the raising of the level of our race as a whole. On the other hand, those that bring children into the world, physically as well as otherwise unbalanced and inferior, are contributing in lowering the standard of the race; are working against instead of with progress and evolution.

As the Greek culture was influenced by the old Egyptians, so the Romans in their turn were influenced by the Greeks. Among the many advantages in culture and refinement which the Greeks gave to their conquerors, the art of curative gymnastics was one of the most important, and this art therefore flourished in Rome particularly because of Greek influence. Many of their most celebrated physicians were Greeks, as for instance Aesclepiades, who practiced shortly before the birth of Christ. He made an extensive use of curative gymnastics, and according to Pagel is considered to have been the founder of this art in the Roman world.

From the Roman literature we learn that gymnastics and massage were highly valued by the laity as well as by the profession. The famous Galen, whose influence lasted for several centuries after his death, paid a great deal of attention to this art. It is partly due to him that this mode of treatment was not entirely

forgotten during the Dark Ages. During the fourth century Arebasius published his book on the art of Curative Gymnastics. This is now our most important record on the subject during antiquity. During the sixth century Actius wrote quite extensively about active and passive as well as resistive movements, massage, etc. During the middle century of the Dark Ages, signs of life of this noble art gradually died out, and like other arts and sciences of antiquity, not only ceased progressing, but took a backward trend. The great laws are either for progress or retrogression. Stagnation, therefore, always means the latter. There is no resting-place in the evolution of the world. There is only progression and retrogression, rising or falling.

It is easy to understand that the seeds which the nations of antiquity had sown could not find favorable conditions for growth during an age that despised science and lost itself in superstition and mysticism. But fortunately for humanity, each evil carries its own remedy in its bosom, each action is followed by a reaction, and the progression of the world resembles the movements of a pendulum that swings from one side to the other, while it at the same time moves forward. Each swing of the pendulum raises humanity a step higher on the ladder of progression. The dawn of the sixteenth century called into existence a new era of thought, not only in religious, but also in curative and other scientific and artistic lines. The world awoke again from its long sleep in mental torpidude, during the Middle Ages, and as the shadows of night fly at the approach of the day, so fanaticism, superstition and bigotry began to fade away. The sun of Truth began again to rise in the East, and although his light may afterwards have been obscured by the mists and vapors rising from fields on which dogmas and superstition were undergoing the process of putrefaction, nevertheless it was penetrating enough to extend its beneficial influence over the subsequent hours of that day. It shone through the murky atmosphere of sectarian bigotry and sent its rays into doubting minds. Free thought and free in-

vestigation, having shaken off the chains with which they were bound down for centuries by the enemies of Liberty, broke the door of their dungeon and rose again to heaven to drink from the Fountain of Truth. Free inquiry took the place of blind credulity; reason rose victorious out of its struggle with blind belief in authority. Spirits that had been bound to cold and dead forms were set free, and began to expand and take their natural shapes, and truths that had been monopolized and held captive for centuries became the common property of all that were able to grasp them.

Such a great struggle for liberty could not take place without causing a commotion in every realm where mind was at work. In the department of the curative sciences there could be seen a general struggle of the new against the old, of reason against sophistry and superstition.

It is now over four hundred years ago that Paracelsus spoke the following words to the physicians of his time. This was during the latter part of the Dark Ages. It certainly explains the reasons why the art of curative gymnastics could not flourish during those times. He says:

"You have entirely deserted the path indicated by nature, and built up an artificial system which is fit for nothing but to swindle the public and to prey upon the pockets of the sick. Your safety is due to the fact that your gibberish is unintelligible to the public, who fancy that it must have a meaning, and the consequence is that no one can come near you without being cheated. Your art does not exist in curing the sick, but in worming yourselves into the favor of the rich, in swindling the poor, and in gaining admittance to the kitchens of the noblemen of the country. You live upon imposture, and the aid and abetment of the legal profession enables you to carry on your impostures, and to evade punishment by the law. You poison the people and ruin their health; you are sworn to use diligence in your art; but how could you do so, as you possess no art, and all your boasted science is nothing but an invitation to cheat and deceive?"

Do we not still have a remainder of the Dark Ages in many of our so-called civilized communities? Wherever the practice of this noble art of curative gymnastics as well as other branches of physiological therapeutics is neglected, and where the methods advocated by the leading authorities in these lines are met with scorn and contempt, there we may still look for a condition similar to that of the time of Paracelsus.

The literature of the sixteenth century marks a distinct advance in the study of gymnastics and other curative principles over the previous darker centuries. Barelli, Baglivi, Sydenham, Stubbe, Temple, Guyon, Meiborn, Paulini, names well known in the pioneer ranks of modern gymnastics, express themselves at some length on the subject of the art of curative gymnastics. The famous Friederich Hoffman declared gymnastics to be the greatest of all curative agencies through its influence on the circulation, appetite, etc. He advocated manual therapeutics after the teachings of the Greeks and Romans and has without any doubt greatly advanced the cause of curative gymnastics in Germany, as well as France and England. In the first part of the seventeenth century the Germans, Stahl, Wedal, Alberti and Buchner, wrote quite extensively on the subject. In 1748 Boerner's "*Disertatio de arte gymnastica*" and Gehrike's "*De gymnastica medica veteris inventoribus*" were published. In England we find the famous work "*Medicina gymnastica*," a treatise concerning the power of exercise as a curative agent. Sherlock, Andry, Winslow, Tissot, Trauchin, and especially Rousseau, can have the credit of making curative gymnastics highly appreciated in Paris at the end of the seventeenth century.

Germany also made a great stride in the gymnastic line, more particularly in general gymnastics, the French paying more attention to its curative side. Guts Muths is the best known of the German advocates of gymnastics during the beginning of the last century. He was greatly influenced by the Greek and Roman authorities on the subject, as well as by Hoffman and his followers.

In the year 1776 there was born a man

who was destined to revolutionize the practice of gymnastic therapeutics. Pehr Henrik Ling, the founder of the Swedish system of gymnastics, was born in Ljunga, in the south of Sweden. After he had matriculated, at the age of eighteen, he first intended to follow in the steps of his father, who was a clergyman. He therefore took the degree of divinity four years later, and then went to Copenhagen, where he for a while taught languages. Later he visited Germany, France, England and several other countries, returning to his native country in the beginning of the last century, the exact year not being known.

On his return home he was a martyr to rheumatism, probably due to the many privations and hardships he had to undergo while on the continent. He was appointed fencing master at the University of Lund in 1805. He soon found that the exercise necessitated by his daily work as a fencing instructor had proven of very great benefit to his physical condition. His rheumatism disappeared and he regained his former vigor and powers.

During the eight years Ling taught in the University of Lund, he was also fertile in literary activity. It was then that he first began to know and love the Scandinavian mythology and to compose patriotic poems in French, German, Danish and Swedish. The tragedy "Agned" was later presented on the stage at Stockholm. His plays as well as his poems show the intensity of his patriotism and his desire to see his countrymen strong in body and soul. For this he was rewarded by membership in the Swedish Academy, where he also received the grand prize. Later he was decorated by the Order of the North Star and given the title of professor. His collected writings fill three large volumes.

In 1806 Ling began to study anatomy and physiology and take part in lectures and attend clinics, until he finally went through nearly the entire curriculum required of candidates for degrees in medicine and surgery. In the meantime Ling experimented with the movements he had learned on the continent. He modified many movements of the older systems and devised many new

ones, until he at last succeeded in establishing a practically new system of gymnastics, which he classified as follows: Pedagogic, Medical, Military and Aesthetic.

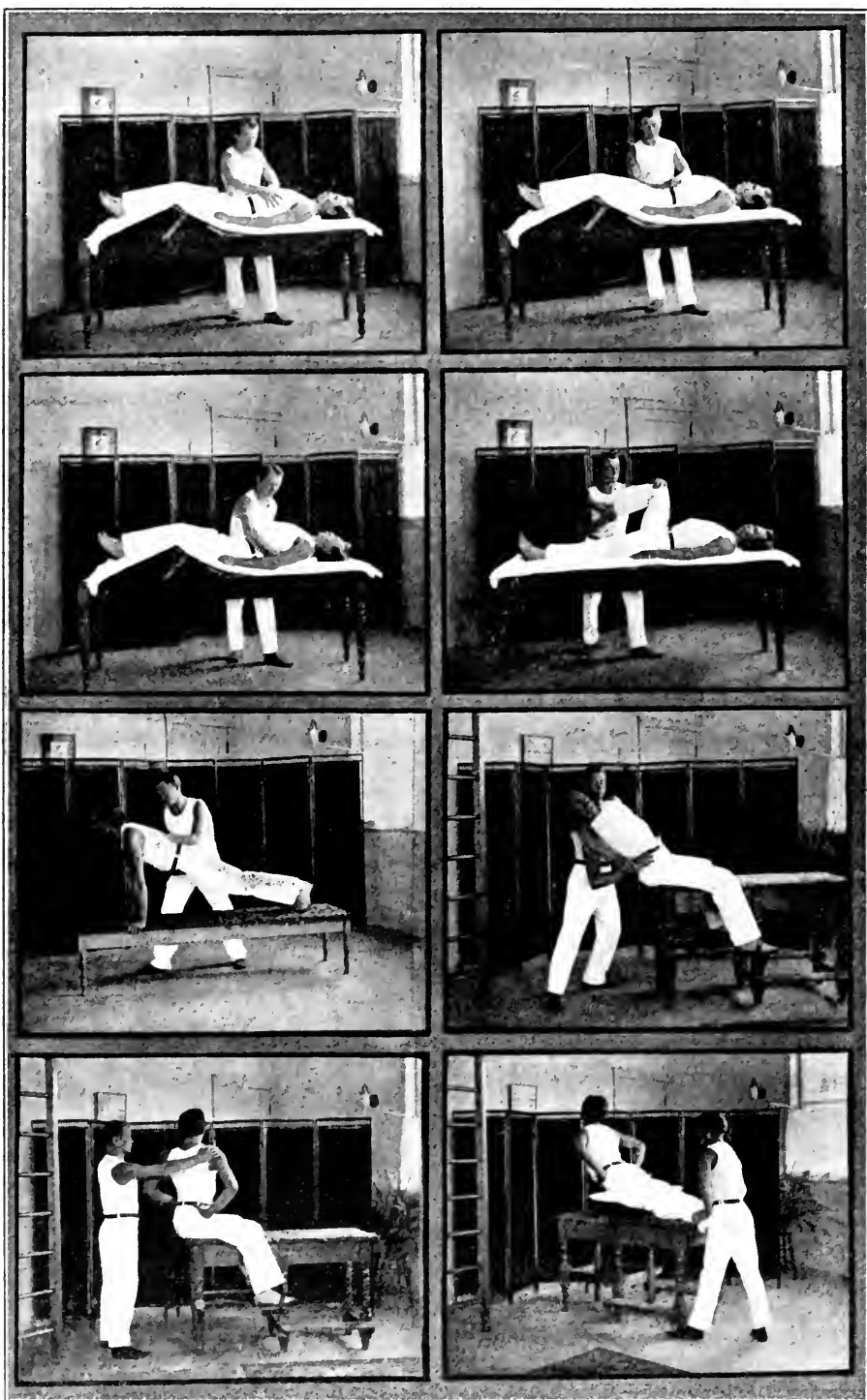
Ling founded the Royal Gymnastic Central Institute in Stockholm in 1813. This famous institute will soon celebrate the one hundredth anniversary of its existence, and in the same year Olympian games are to be held in Stockholm. No more appropriate celebration could be planned for its centennial. The Greek paper *Asti*, at the time of the Olympian games in Athens, 1906, said of the Swedish exhibition:

"The Swedish gymnastics are wonderfully beautiful. They were perfect. It was a lesson for us all, and we may profit by it. Even the uninitiated among the public understood its real value and admired it. There rested a peculiar harmony over all these movements. It was something *ne plus ultra* of really sensible, rational gymnastics. There was noticed a certain noble fineness in these Swedish gymnastics which was absolutely free from all extremes. The Swedes have had a great mission to fill, and they have succeeded."

J. Y. Cameron, of the Central Y. M. C. A., Buffalo, in the *American Physical Education Review*, said of the Scandinavian Exhibition at the Olympic games in London, 1908: "In the gymnastics the Scandinavians captured all three places in team-work. Their work was bordering on the marvelous. Sweden came first, Denmark second, and Norway third."

Mary B. Hardt, in the *World's Work* for May, 1907, wrote concerning the subject of "Body-Building in Sweden" as follows: "In Sweden health means something more than non-sickness; it stands for physical well-being, soundness, splendid vigor. Without for a moment neglecting medical precautions, it attacks the positive side of the question—'How to insure to every Swede his natural birthright of abounding vitality.'"

"The answer, as everybody knows, is EXERCISE. But we do not all know how far Sweden carries that creed. Exercise, gymnastic exercise, not mere walking, is a religion. The very criminals



SPECIAL SWEDISH MOVEMENTS GIVEN BY THE AUTHOR

(See latter part of page 109.)

under sentence must have it, and therefore full instructions for daily gymnastics are posted even in the condemned cell. As soon would they think of depriving a malefactor of his Bible as of his 'day's order.' Adults must have it, and therefore the gymnasiums spring up as thick as mushrooms. The children must have it; therefore, when the state has done all that it can for them physically, private associations take them up. Free skating rinks and toboggan slides—even free toboggans and skates for the skateless—are provided, less with the end of giving the children joy than of promoting that fetish of the Swedish soul, public health. Associations for outdoor games take charge of the public playgrounds, organizing so-called pedagogic games that are not only uproarious fun, but develop swiftness, precision, and snap. With government aid, these societies send teachers of games to all the common schools and the children are turned loose in the open air every day for a short romp. We use these Swedish games in our gymnasiums and in such of the public schools as can command the space. Why not use them out of doors and make them universal?

"The Swedish government itself takes splendid care of the muscles of its little citizens. Every school-child in the kingdom is under bonds to learn to swim, unless, as is rarely the case, the schoolhouse is too far from any water. The Swedish small boy is more likely to be provided with swimming trunks and forced into the water than, as with us, arrested for going in without them.

"As for the formal gymnastics in Swedish schools, it is a very serious affair; for it is **BODY BUILDING**. One system (the Ling) prevails throughout the kingdom, and even in the country schools the teachers are all experts. A Swede would as soon think of letting a medical student experiment upon his liver as of permitting a teacher to meddle with his children's muscles without a certificate from the Royal Institute. The worship of the Ling system may be ludicrous, but the American no-system is not less absurd. Think of the young women who 'take up' Delsarte or what-not and are permitted to teach. Think

of the overworked grade teachers who are considered good enough to educate the bodies of the children in the public schools. True, experts sometimes teach these luckless teachers to teach the children to wave their arms and legs. But you can not make good gymnasts, theoretical or practical, out of the rank and file of stiff or flabby school ma'ams. The bodies of young Americans are not 'built'—they just grow.

"The rugged children of Sweden are a convincing recommendation of the national method. In agility, poise, and grace, to say nothing of physical stamina, they are far in advance of our school children. A larger investment in scientific physical training in our schools would pay dividends in the shape of a steadier nervous organization, a sounder physique.

"When a Swede gets his body built, he does not leave off there. What the club is to an American business man, the gymnasium is to the Swede. He takes exercise suited to his age to keep in condition; or if ailing, puts into the nearest gymnasium for repairs. Headaches, liver complaints, nervousness, dyspepsia, are all treated, at least partially, by active or passive gymnastics. That is, the Swede either exercises or lies down and permits an attendant to exercise him.

"Medical gymnastics after the Swedish model are more and more coming into favor with American physicians. But middle-aged Americans have a lot to learn about the therapeutic value of exercise. It keeps off fatty degeneration; it keeps off old age. Look at the Swedes—their clear skins, their fresh color, their freedom from overplus weight. Look at their mortality rate—the lowest in the civilized world!"

Swedish gymnastics is a really vital art as well as a science which admirably satisfies the needs not only of that nation but also, with a few modifications, of most other civilized nations.

Victor Balk, the distinguished Swedish authority on gymnastics, says:

"Swedish gymnastics have made, it may be said, their triumphal march over the whole world. In England they have been introduced into the naval training

schools; training schools of gymnastic teachers for the English army adopted several of its forms, while private training schools of Swedish gymnastics exist in several parts of the country. In France the new manual of gymnastics for the army is based on the Swedish principles. In Germany a central institute for the training of teachers in accordance with the same system was founded as long ago as fifty years.

"Swedish gymnastics are probably the most rationally correct existing."

Ling was an artist in the highest sense of the word—a poet and a philosopher of rare ability, and a noble-minded individual who thought for himself. He reasoned according to natural laws and was therefore able to lay the foundation for a system of gymnastics, curative as well as educational, which now is considered above criticism. Ling shows very plainly in his writings that he was influenced by the gymnastics of antiquity. He knew of the Greek and Roman as well as of the French and German gymnastics. The latter was flourishing during his youth, and in spite of his criticism of the same, it had a great deal of influence over his methods. The Swedish system of curative gymnastics is therefore an offspring of German and French systems, and the latter in turn, as already shown, had their birth in the Greek and Roman systems.

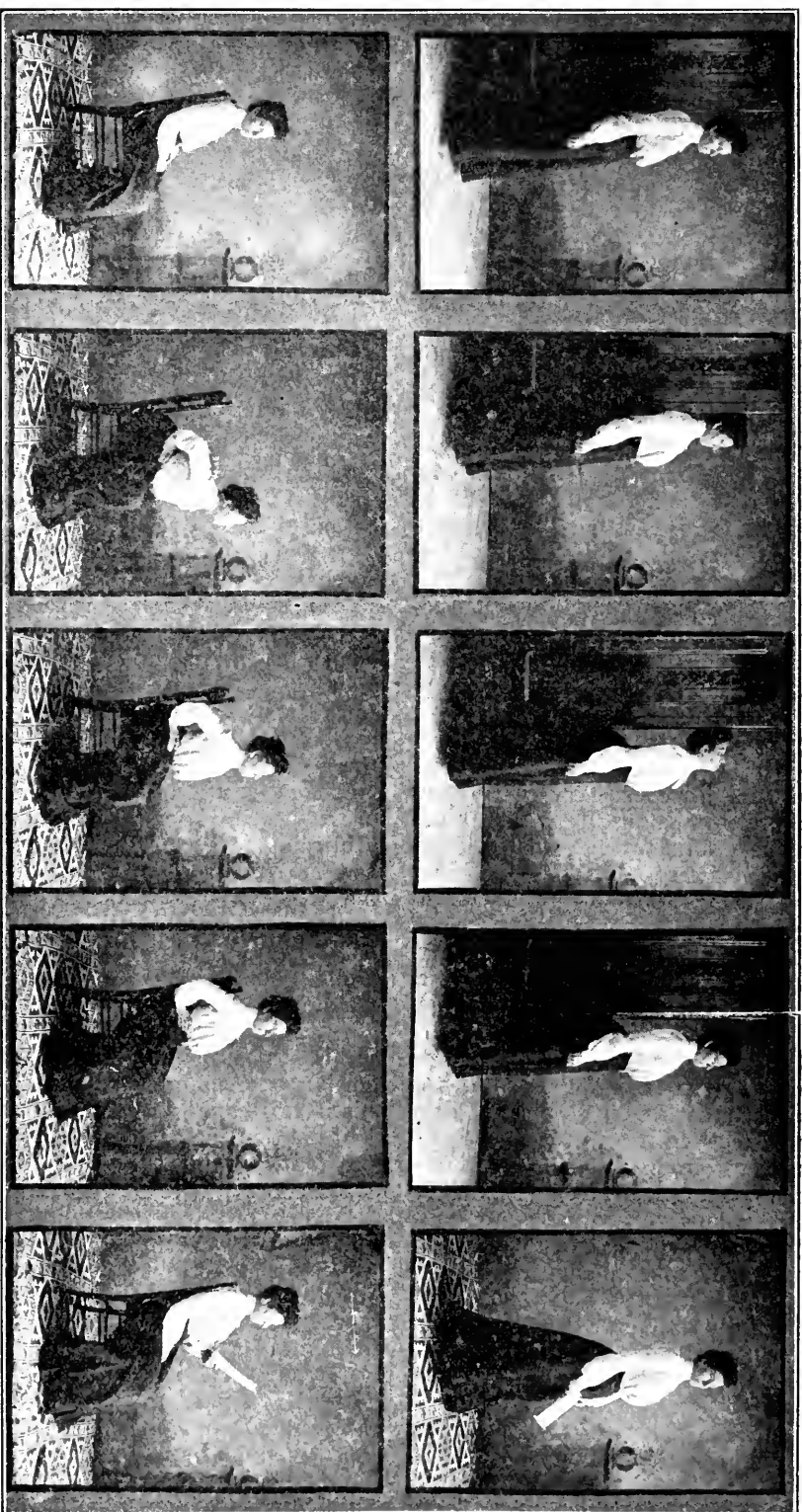
The Ling system of curative gymnastics was further developed by his pupils Branting and Hjalmar Ling. The Germans did considerable to make the system appreciated by introducing it at the great German and Austrian clinics. It was especially when such famous physicians as Hueter, Esmarch, Barbieri, Volkmann and Gussenbauer began to advocate the gymnastic system in their practice and to demonstrate its virtues, that the scientific world began to wake up to its great importance. Gradually they began to see that the art and science of curative gymnastics had the same rights to demand recognition as other branches of physiological therapeutics. The circumstance that fakers often misused and in a most unethical way advertised the system neither could detract from nor add anything to its value.

In Sweden, the real home of this science, the pupils of Ling greatly helped to establish the respect for these methods and gradually also to spread the knowledge thereof to other countries. Many able advocates have been working with great skill as well as enthusiasm to spread the principles of the Ling system to all the civilized world. A great many fanatical advocates of the system, who were too irrational to be tolerated in their own country, have also lent their influence in advertising certain faulty and perverted ways of practicing the system. The medical profession in this country has been so unfortunate as to come in contact with a number of these fake specialists, and as a result have formed their opinion of the system partly from the impressions thus gained.

Dr. J. K. Mitchell, in his work on Mechano-Therapy and Physical Education, says the following about the Ling system of curative gymnastics:

"General medicine owes much to Ling's propaganda in the spread of information about medical gymnastics, though not so much as Swedish authors would have us believe. It is probable that had Ling's system been cumbered with a less appalling terminology and less burdened with fantastic theories, it would to-day occupy a higher position. Valuable as Ling's work was, the school founded by him has degenerated into a kind of barren formalism; the system has become a sort of religion in which faith replaces knowledge, and one is asked to begin its study by swallowing whole a quantity of the most innutritious formulæ on which science could be fed. Moreover, almost all of Ling's theories are untenable and his physiologic statements absurd. . . . Fortunately, however, the practice of the Swedish gymnasts always has been, and is now, better than their theories; and in their specialty of corrective work they most certainly obtain results."

It is true that Ling was deficient in his knowledge of physiology, etc., as were all other scientists of his time, but his rare scholastic ability and broadness of mind enabled him nevertheless to found a superior system which was later to be simplified and perfected by his pu-



METHOD OF TAKING THE CORRECT STANDING AND SITTING POSITIONS
Some of Dr. Kellogg's Corrective Exercises referred to on pages 37 and 112.

pils. Many of these, such as Sanden, Liedbeck, Thure Brandt, Hartelius and Gustaf Unman in Sweden, Georgii in Paris, Eckhard, Schmidt, Rothstein, Eulenburg and Neumann in Germany; Melieher in Austria; Indebetou and Roth in England; Eichwold, de Rou and Berglund in Russia, were well versed in physiology, anatomy and similar subjects. They were therefore well able to establish the Ling system and found it upon thoroughly scientific principles.

During the latter part of 1860 the Swedish system of curative gymnastics received a great uplift by the inventions of Dr. Gustof Zander. He introduced methods by which people could be treated with active as well as passive movements administered by means of specially made apparatus. Although the value of these, as well as the manual methods, are often overestimated by certain enthusiasts, still every broad-minded individual who takes care to impartially investigate these methods, can not help admiring the genius of the inventor, Dr. G. Zander. His methods have certainly proven of great advantage in treating disease as well as in educating the public to these truths.

The two classes of Zander machines are respectively intended for the administration of the several manipulations of massage and for the production of passive, active-passive and resisted movements. Their operation depends upon various applications of the lever-principle. A manometer is so attached as to show or register the force used, the speed of each machine is governed by the number of teeth in its several cog-wheels, adjustable to obtain differing rates and extents of movement, and a special clutch-wheel or a governing handle is so fitted to each as to make it possible to throw the whole machine out of gear and stop it in an instant. The motive power is entirely separate, and may be steam or electricity. Herz, Krukenberg, Funke, Nebel, Charcot and others in Europe; Kellogg, Taylor, Phelan and a few others in this country, have produced a vast number of mechanical devices, more or less complicated, for the same purposes as the Zander machines. Those of Herz, Kellogg and Krukenberg have

met with the greatest success. Their principles of operation differ somewhat from Zander's, and some of them are improvements or simplifications of the latter's apparatus, but the effects sought are the same as in his system.

Dr. Taylor in New York and Dr. J. H. Kellogg in Battle Creek, Mich., were among the first in this country to advocate the art of curative gymnastics. Dr. Kellogg was a pioneer in this as in a good many other fields. He was quick to recognize the principles not only of curative gymnastics, but of all the other branches of physiological therapeutics. He has proven the efficacy of these curative methods by the success with which he has applied them in thousands of cases for the past quarter of a century. He has himself introduced many valuable appliances and methods for the proper development of the chest, the abdomen, the back and other parts of the anatomy, as well as for correction of deformities. A good many of these the writer has thoroughly tested and found them of great value. Several of these methods are therefore described in this book, with the hope that they may prove a blessing to everybody who tries them, as they already have proven of inestimable value to thousands. They are described in greater detail in Dr. Kellogg's work on the "Art of Massage." Dr. Kellogg is striving to educate his patients out of disease instead of trying to cure them by mysterious remedies. That is his strong point. His work has been so important and result-bringing that his name should live for ages even if he had not done any more than to introduce the fore-mentioned methods and impress their value on the general public.

We have also in this country a great many practitioners of osteopathy, chiropractice, etc. The fanaticism and unscientific reasoning of many of them, however, often lead them into harmful extremes, which is greatly to be regretted.

In an article appearing in *American Medicine*, Oct. 17, 1903, Dr. R. C. Newton, who states that the practice is of old Italian origin, says: "The lesson they [the osteopaths] teach is that the human frame can not only endure, but can be

benefited by maneuvers which are usually regarded as so severe as to be dangerous. To teach people the necessity of bodily exercise, if they wish to enjoy good health, has been and still is a difficult and discouraging task. But the people are learning their lesson for all that; and the osteopaths are contributing (albeit unwittingly) their share to the fund of human knowledge."

Many wide-awake so-called osteopaths are now broadening out into a more rational system of manual therapeutics—a system simplified and perfected, which is neither Swedish nor osteopathy, including everything of value in the old systems. The time for unreasonable controversy and conflict between the different schools of manual therapeutics will soon be past, and a new era for the curative arts is fast dawning upon us. In fact, it is already here, all that is necessary for the broad-minded practitioner is to recognize the changes which have evolved during the last few years and step out into the broader light. He will then be able, according to the measure of his capacity, to give all men their just due. An unfailing respect must characterize the attitude towards all searchers after truth. A wide tolerance must be manifested towards the exponents of opinions different from our own.

"I know too well," says an earnest man of science, "that no man can think maturely unless he thinks in the light of other men's thoughts." It is the acknowledged duty of every student to familiarize himself with the results of the work of experts in his own chosen field

of research. To avoid the narrowness to which specialization tends, there should also be large general information.

It certainly requires a person of idealistic and artistic as well as scientific tendencies to successfully apply the principles of the Art of Curative Gymnastics. The scientific knowledge alone will not accomplish much without the enthusiasm which comes from a more idealistic way of comprehending these great truths. Like the sculptor, for instance, he must passionately love his profession, aspiring with all the best that is in him for a greater perfection, simpler and more effective methods. He will then be a more useful artist, for he will use the living material, the real human being, instead of clay and stone, canvas and pigments.

The specialist in manual therapeutics and other branches of physical education must understand psychology and pedagogy as well as physiology and anatomy. Otherwise his work will be a failure, no matter how high his scientific knowledge. He must be sufficiently broad and liberal to accept truths in these lines even from those whom he may consider far below him. We may learn from savages and animals—how much more, then, from peasants and other natural minded, simple people. The great man is he who can simplify scientific knowledge, educational principles and religious truths until a child is able to comprehend them. This is the mission, then, of the future humanitarian, to do away with unnecessary mysticism and present the highest truths in such a way as to make them common property.



The Influence of Exercise and Mental Attitude on
the Circulation of the Blood



THE INFLUENCE OF EXERCISE AND MENTAL ATTITUDE ON THE CIRCULATION OF THE BLOOD

IT has long been known that many diseases have their origin in a sluggish circulation of the blood. Health can exist only while there is free circulation in every part of the physical body. Life is synonymous with activity, and stagnation with death. There is one great agent in the building and repairing of the body, and that is the circulation of the blood. It brings substance to every cell in the body and carries away waste matter. The blood stream is responsible for all building and cleansing of the body, for diseased or healthy tissue. If this is true, then any means that will quicken the circulation, whether it be mental or physical, should be considered as a valuable means of cure.

Abdominal and other trunk exercises have always proven of great value in overcoming the tendency to venous congestion, especially in the portal region. The importance of portal congestion as a cause of disease has been admirably emphasized by Dr. Abrams (see page 31).

Man is distinguished from all other mammals by his erect posture. "If an intelligent extra-mundane," says Campbell, "were to see man for the first time in the horizontal posture, it would never occur to him that it is natural for him to be erect. There is something incongruous in an animal built on the longitudinal plan, standing and progressing upon one end of its long axis." The dangers of this position are that the so-called civilized man of our present day, by convention or habit, is forced to stand or sit almost erect on the long axis of his body all day and often until late at night, thus causing the spinal column to gradually become more and more stiffened, bent and shortened. This is a very common deformity, which often causes parts of the spinal column to become almost immobile. The blood is allowed to congest and frequently actually to stagnate in the venous cavities and other vessels in the pelvis, as well as the portal system, not now to speak of the venous cavities in the brain and spinal

cord, varicose veins in the legs, testicles, rectum, etc.

How can a person with weak abdominal muscles and a curved and stiffened spine, who has to sit in a stooped or even upright position all day, avoid suffering from portal and pelvic congestion? There is no other cure for these troubles than to remove all the many different causes. Increase the tone of the abdominal muscles and limber up the spinal column, and the blood will circulate much more freely. The brain and nerves, muscles, skin, etc., will no longer be robbed of the life-giving oxygenated blood, which in a healthy body should flow freely to all its different parts.

The difference between arterial and venous blood is indeed very remarkable. One is a stream of life, carrying oxygen and vitality to every nook of our physical organism. The other may be a stream of death if the waste and impurities are not thrown off fast enough by the eliminating organs.

Abdominal and spinal exercises, with deep breathing, if correctly executed, will not only greatly assist in emptying the above-mentioned veins, but also increase the elimination of the carbon dioxide as well as other waste products. The blood will in this way quickly become purified and enabled to carry the life-giving oxygen and other nourishment to all the living cells of the body, provided the big pump (the heart) still is intact and in working order and the arteries and arterioles (the peripheral heart) elastic enough to force the life-giving fluid onward.

All the circulating fluids in the body are subject to the sympathetic nervous system in the following way: All the activities of the body, except those of a chemical nature, are tubular. Bile, blood, air, food, sweat, pancreatic juices, lymph and saliva, all flow through tubes, and the flow is controlled by the involuntary muscles which constitute one or several of the coats of the tubes in the body. By the action of these involuntary muscles we perspire, we breathe, our hearts

beat, and food is carried through the stomach and intestines. And what makes muscles move? *Nerve stimulus*. The cerebro-spinal nerves influence the voluntary muscles, but the involuntary muscles are controlled by the great sympathetic nerves. The sympathetic nerves, then, are the brains that control circulation, perspiration, digestion, elimination and all the functions of the physical organism.

The spirit of man, which is often called the subconscious mind, acts through these great nerves to influence vital action. The states of the spirit, or subconscious mind, are all reflected into physical function through these nerves. According to the quality of the emotions that the spirit sends through these nerves will be the state of vital action, a fact which we can hardly emphasize too strongly, as it is so universally overlooked. How many so-called scientists of the extremely materialistic type actually realize that the state of their subconscious mind influences even the caliber and motions of all the tubes of the body, particularly the minute tubes of the capillaries and arterioles, the so-called peripheral heart? Whenever the mind is in an unnaturally tense and anxious state, the spasm of these arterioles may be so marked as to actually overcrowd the blood in the veins. Hence, the diseased craving for poisonous stimuli that will temporarily relieve this unnatural tension, increase the strength of the heart-beat, or both. Many unbalanced persons seem to be willing to do almost anything that will allow the life-giving arterial blood, if only for a few brief moments, to flush their diseased nerve centers, often without even a thought of the destructive consequences of such habits.

The superiority of our spiritual life and its intimate relationship to the physical is now becoming more and more recognized, not only theoretically but in the real life of many natural minded people who have not yet been robbed of their "sanctified common sense," and who are yet simple minded enough to learn these important lessons of real life, even from their own little children. It is actually impossible to even touch on the simplest

functions of the body without recognizing the superiority of this spiritual life of ours. If we were living in an ideal spiritual atmosphere, surrounded by the most favorable climatic as well as social conditions, our bodies would naturally grow up to a perfect state, providing our spiritual life was in harmony, attuned to the vibrations of the Almighty. But having become crippled by conventions, deformed by perverted social as well as so-called religious customs and superstitions, scientific training has become necessary.

This temple of ours, often out of shape and ready to collapse, must be rebuilt and renovated according to the Divine plan of perfect harmony, so that the indwelling spirit may be able to work out its destiny without too much friction and interference.

If we examine an average individual, we often find stooped shoulders, collapsed chest, pendant abdomen and other unbecoming and injurious malformations and positions. The wrong sitting habit, lack of proper physical exercises and spiritual stimulation and aspirations have gradually deformed the majority of people into a race of semi-invalids and physical wrecks.

If we would only watch the children at play and take example from them, it would make it easier to get back to the normal again. Watch them roll on the floor and kick up their little heels, a real superior abdominal exercise, and watch the spirit in which they do it. Yes, it is primarily their *feelings* we want, then the methods will come of themselves, so to speak. We want to feel ourselves in the muscles of every part of the body as we use them—to enjoy being alive and active, like children at play. What a great number of movements they make in a day. No wonder they are hungry all the time and do not suffer from lack of appetite or insomnia. Every little cell in every part of the body is kept vigorous. We can just imagine every intelligent cell in the child as smiling and happy in its activity. There is no sluggishness anywhere.

The savage, in his outdoor activity, retains his childhood vigor much longer than we do, because he lives more and

thinks less—that is, in his upper brain. As we mature we become more thoughtful and dignified and inactive, physically. We have retired to the cranium and become so weighed down with the distractions and cares of mortal life that life's building and restoring processes are disturbed. We have become so theory perverted that we have actually lost the ability to appreciate the simplicity and beauty of a childlike nature and learn from the lives of the natural ones. A few minutes of physical activity such as children indulge in, convinces us that we have already begun to lose our body, even though no more than

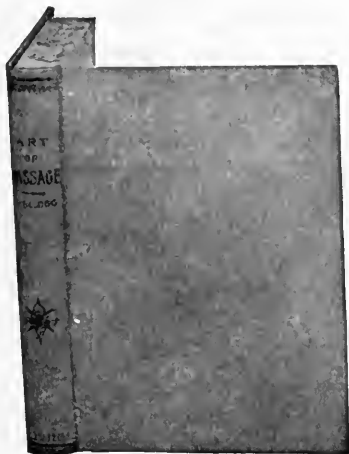
thirty years of age. Then, instead of heeding the lesson and returning to the kingdom of life and joy that the child inhabits, throwing off care and worry simply by a childlike faith in the Good Father, we are apt to surrender to the stealthy approach of decrepitude and death, without resistance.

Let us cast off the fears and sorrows and mental weights of mortality. They are false and have no basis in truth. This we feel when the Spirit of Truth is fully realized. Let us arise in the strength of the spirit and inhabit this body with a joyous consciousness of a deathless destiny of active usefulness.

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By J. H. Kellogg, M. D.

Member of the British Gynecological Society, the International Periodical Congress of Gynecology and Obstetrics, American and British Associations for the Advancement of Science, the Societe d'Hygiene of France, American Medical Association; Superintendent of the Battle Creek (Michigan) Sanitarium.



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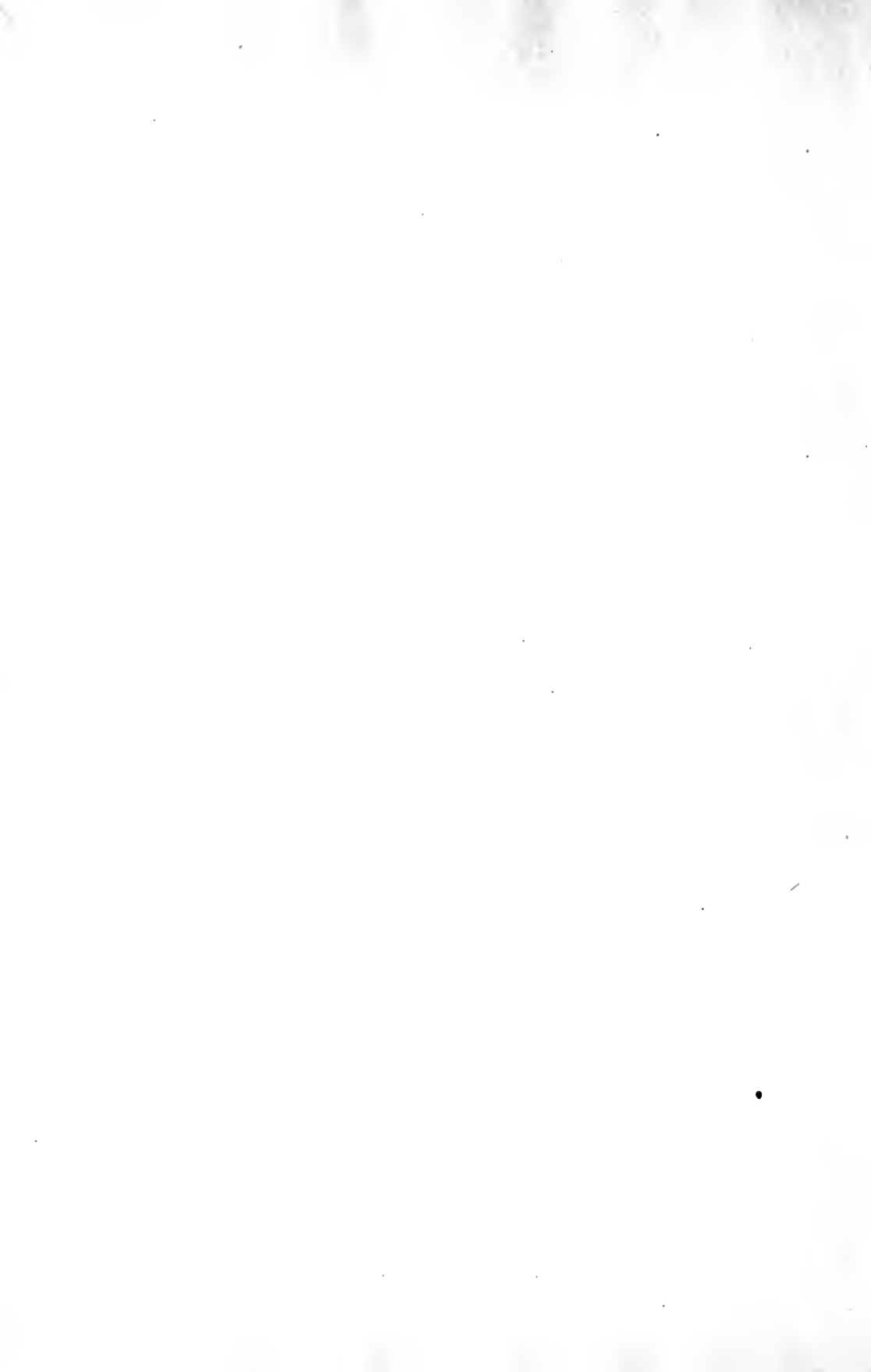
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(See opposite page.)





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